CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2003-0067

NPDES NO. CA0078590

WASTE DISCHARGE REQUIREMENTS FOR THE TOWN OF DISCOVERY BAY AND ECO RESOURCES, INC. DISCOVERY BAY WASTEWATER TREATMENT FACILITY CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

BACKGROUND

1. The Town of Discovery Bay (formerly known as Discovery Bay Community Services District) and ECO Resources, Inc. submitted a Report of Waste Discharge, dated 24 December 2002, and applied for a permit revision to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from the Discovery Bay Wastewater Treatment Plant. The application included expansion of the existing treatment facility, increase in the discharge quantity, the construction of a diffuser and pipeline for direct discharge to Old River, and based on a change in location to the receiving water, a request to modify the copper effluent limitations. Supplemental information to complete filing of the application was submitted on 26 July 2002, 7 August 2002, 22 October 2002, and 13 January 2003.

2. The Town of Discovery Bay (Discovery Bay) owns a wastewater collection, treatment, and disposal system, and provides sewerage service to the community of Discovery Bay. The treatment facility is operated by ECO Resources, Inc. under contract with Discovery Bay. Discovery Bay and ECO Resources, Inc., are hereafter jointly referred to as Discharger. The existing treatment plant is in Section 36, T1N, R3E, MDB&M, and the new added treatment plant is in Section 31, T1N, R4E, MDB&M, as shown on **Attachment A**, a part of this Order. Secondary treated municipal wastewater is currently discharged to Reclamation District No. 800's drainage ditch at the points, latitude 37°53'39" North and longitude 121°35'7" West (Discharge Point 002), latitude 37°53'18" North and longitude 121°35'7" West (Discharge Point 003). Water from the reclamation ditch is then pumped to Old River (Discharge Point 001). The discharge to Old River is at a point Latitude 37°53'8" North, Longitude 121°34'30" West. Both are waters of the United States.

3. The Discharger is currently regulated under an NPDES permit, Order No. 99-096, and Cease and Desist Order (CDO) No. 99-097. The CDO included a time schedule to bring the discharge into compliance with the effluent limitations for copper by 1 September 2002. The Discharger evaluated different alternatives to come into compliance with the copper limitation, including source identification, advanced treatment, changing water supplies, and relocation of the discharge point to a location which would provide a mixing zone for copper. The

alternative the Discharger selected was to relocate their discharge point directly into Old River to provide assimilative capacity for copper and bring them into compliance with the CDO and their NPDES permit. The Discharger has requested issuance of a revised NPDES permit and CDO to allow a direct discharge to Old River and thereby eliminating the existing discharge to the Reclamation District No. 800 drainage ditch. The Discharger anticipates design, permitting and construction activities will allow the new direct discharge to Old River to commence in mid-2004. Therefore, this permit revision continues the effluent and receiving water limitations prescribed by Order 99-096 for the Reclamation District No. 800 drainage ditch and addresses potential water quality impacts resulting from the change in discharge location to Old River. This Order also implements new effluent limitations that will comply with the California Toxic Rule (CTR), National Toxic Rule (NTR), and other constituents with numeric water quality objectives. Compliance with new CTR/NTR limitations will be effective once direct discharge into Old River is initiated.

4. The existing treatment facility provides secondary level treatment and consists of bar screens, a comminutor, an oxidation ditch, secondary clarifiers and an ultraviolet (UV) disinfection system. The oxidation basin is operated to nitrify and denitrify, reducing both the ammonia and nitrate concentrations in the wastewater. Sludge is stored in a facultative lagoon and periodically dewatered and disposed of at an appropriate disposal facility (see **Attachment B**). The existing plant serves a population of 9500 in the community of Discovery Bay. The Report of Waste Discharge describes the current discharge as follows:

Monthly Average (dry weather) Flow	1.1 million gallons per day (mgd)
Design Flow (existing dry weather):	1.3 mgd
Design Flow (dry weather expansion):	2.1 mgd
Average Temperature	75 °F (summer), 65 °F (winter)
Highest Temperature	79 °F (summer), 70 °F (winter)
pH ranges	(7.0 – 8.1)

Constituent	Concentration[1]
BOD	(<3-44) mg/l
TSS	(<5-13) mg/l
Dissolved Oxygen	(6.8-9.0) mg/l
TDS	(1200-1400) mg/l
Electrical Conductivity @ 25°C	(1900–2300) µmhos/cm
Hardness as $CaCO_3$	(190-290) mg/l
Ammonia (as N)	(0.1-1.2) mg/l
Sulfate (as SO_4)	(110-170) mg/l
Nitrate as N	(7.2-14)[2] mg/l
Aluminum	(90-110)[2] µg/l
Barium	(42-50)[2] µg/l
Chloride	(310-390) mg/l
Fluoride	(0.43-0.6) mg/l

Iron	<50[2] µg/l
Manganese	(7.8-11)[2] µg/l
Antimony	<0.2[2] µg/l
Arsenic	(1.5-2.0)[2] µg/l
Beryllium	<0.06[2] µg/l
Cadmium	<0.03[2] µg/l
Copper	(5.4-51)[1] µg/l
Lead	<0.25[2] µg/l
Mercury	(0.0039-0.0055)[2] µg/l
Nickel	(2.2-2.4)[2] µg/l
Selenium	(<0.5-1.0)[2] µg/l
Silver	<0.02[2] µg/l
Thallium	<0.03[2] µg/l
Zinc	(23-29)[2] µg/l
Cyanide	<0.9[2] µg/l

[1] Range from 2000-2002 data.
[2] Results from 2002 data only.

5. Plans for an additional 2,000+ dwelling development, Discovery Bay West, have been approved within the service area, necessitating an expansion of the wastewater treatment and disposal system. The Discharger proposed constructing additional treatment units on the South side of Highway 4 in order to accommodate growth and increase the design capacity from 1.3 mgd to 2.1 mgd (see **Attachment B**). The treatment plant expansion consists of an oxidation ditch, clarifier, UV system, two sludge lagoons, and new outfall 003. New sludge lagoons will be constructed so that percolation into groundwater will be minimized by a single clay liner having a permeability of $1x10^{-6}$ cm/sec or less. Upon completion of the plant expansion, estimated to be early 2003, the Discharger will cease to use discharge point 002, and begin to use discharge point 003 to the Reclamation District No. 800 drainage ditch. By mid-2004 a new outfall with a diffuser to Old River will be constructed at the same location as discharge point 001 (new discharge point 001A), at latitude 37°53'8" North and longitude 121°34'30" West. Upon completion of the direct discharge to Old River, discharge points 002 and 003 will no longer be used.

6. An Information Sheet containing information regarding the facility and the regulatory basis for these requirements is attached, and is a part of this Order.

7. The U.S. Environmental Protection Agency (USEPA) and the Regional Board have classified this discharge as a major discharge.
8. The Regional Board adopted a Water Quality Control Plan; Fourth Edition, for the Sacramento and San Joaquin River Basins (hereafter Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies

to achieve those objectives for all waters of the Basin. Requirements in this order implement the Basin Plan.

9. USEPA adopted the National Toxics Rule (NTR) on 5 February 1993 and the California Toxics Rule (CTR) on 18 May 2000. These Rules contain water quality standards applicable to this discharge. The State Water Resources Control Board (State Board) adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (known as the State Implementation Policy-SIP), which contains guidance on implementation of the NTR, CTR, and other priority toxic pollutants

RECEIVING WATER BENEFICIAL USES

10. The beneficial uses of the Sacramento–San Joaquin River Delta (which includes both receiving waters, the Reclamation District 800 drainage ditch and the section of Old River at the point of discharge), as defined in the Basin Plan, include: municipal and domestic water supply (MUN), irrigation and stock watering (AGR), industry process (PRO) and service supply (IND), contact (REC-1) and non-contact (REC-2) water recreation, freshwater habitat for both warm (WARM) and cold water species (COLD), serves as migration (MIGR) waters for three warm water species (striped bass, sturgeon, and shad) and two cold freshwater species (salmon and steelhead), allows for spawning of three warm water species (striped bass, sturgeon, and shad) (SPWN), serves as wildlife habitat (WILD), and allows for navigation (NAV).

11. The Reclamation District 800 drainage channel is strictly used as an irrigation runoff channel and under worst-case conditions, it does not provide any dilution at the point of discharge. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life. Old River, however, in the vicinity of the discharge point is influenced both by natural and tidal cycles, and by Delta water exports via the state and federal projects. Information submitted by the discharger suggests Old River can provide sufficient dilution for assimilative capacity of Discovery Bay's discharge. Therefore based on the conditions of these receiving waters, this Order considers dilution and a mixing zone in establishing effluent and receiving water limitations for discharges to Old River. This order does not allow dilution credits, in the interim period, when discharging to the Reclamation District 800 drainage channel.

EFFLUENT LIMITATIONS AND REASONABLE POTENTIAL

12. Effluent limitations, and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.

13. Clean Water Act Section 301 (b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include Regional Board Basin Plan beneficial

uses and narrative and numeric water quality objectives, State Board adopted standards, and federal standards, including the CTR and NTR. The Basin Plan contains numeric water quality objectives and contains a narrative toxicity objective that states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." (Basin Plan at III-8.00.) For determining whether there is reasonable potential for an excursion above a narrative objective, the regulations prescribe three discrete methods (40 CFR 122.44 (d)(vi)). The Regional Board often relies on the second method because the USEPA's water quality criteria have been developed using methodologies that are subject to public review, as are the individual recommended criteria guidance documents. USEPA's ambient water quality criteria are used as means of supplementing the integrated approach to toxics control, and in some cases deriving numeric limitations to protect receiving waters from toxicity as required in the Basin Plan's narrative toxicity objective. In addition, when determining effluent limitations for a discharger, the dilution of the effluent in the receiving water may be considered where areas of dilution are defined. However, when a receiving water is impaired by a particular pollutant or stressor, limited or no pollutant assimilative capacity may be available in spite of the available dilution. In these instances, and depending upon the nature of the pollutant, effluent limitations may be set equal to or less than the applicable water quality standard which are applied at the point of discharge such that the discharge will not cause or contribute to the receiving stream exceedance of water quality standards established to protect the beneficial uses.

Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs the Regional Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for **ammonia, copper, chloride, electrical conductivity, mercury, nitrate, and total dissolved solids**. Mercury, in addition to being 303(d) listed for the Delta, is bioaccumulative requiring an effluent limit that does not contribute to increased mercury levels in fish tissue. Effluent limitations for these constituents are included in this Order. In addition, this Order contains provisions that:

a. Require the Discharger to conduct a study to provide information as to whether the levels of priority pollutants, including CTR and NTR constituents, constituents for which drinking water maximum contaminant levels (MCLs) are prescribed in the California Code of Regulations (CCR), or other pollutants in the discharge cause or contribute to an in-stream excursion above a water quality standard, including Basin Plan numeric or narrative objectives;

b. If the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard, requires the Discharger to submit information to calculate effluent limitations for those constituents; and

c. Allows the Regional Board to reopen this Order and include effluent limitations for those constituents.

On 10 September 2001 the Executive Officer issued a letter, in conformance with State Water Code, Section 13267, requiring the Discharger prepare a technical report assessing effluent and receiving water quality. A copy of that letter, including its attachments is incorporated into this Order as **Attachments D through D-4**. The study/provision contained in this Order is intended to be consistent with the requirements of the technical report (**Attachment D**) in requiring sampling for NTR, CTR, and additional constituents to determine if the discharge has a reasonable potential to cause or contribute to water quality impacts. The technical report requirements contained in Attachment D list specific constituents, detection levels, acceptable time frames and report requirements. **Provision G4** contained in this Order is intended to be consistent with the requirements of the technical report request.

14. CWC Section 13263.6(a), requires that "the Regional Board shall prescribe effluent limitations as part of the waste discharge requirements of a publicly owned treatment works (POTW) for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRKA) indicate as discharged into the POTW, for which the State Board or the Regional Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective".

    The Regional Board has adopted in the Basin Plan numeric receiving water objectives for arsenic, copper, cyanide, silver and zinc and a narrative objective for toxicity that apply to Old River in the Sacramento San Joaquin River Delta. The narrative toxicity objective and the Basin Plan *Policy for Application of Water Quality Objectives* provides that the objective may be translated using numerical limits published by other agencies and organizations. As detailed elsewhere in this Permit, available effluent quality data indicate that effluent concentrations of ammonia, chloride, coliform, copper, nitrate, total dissolved solids (TDS), and electrical conductivity (EC) do have a reasonable potential to cause or contribute to an excursion above numeric or narrative water quality objectives. The EPCRKA Section 313 toxic chemical release data report indicates that ammonia, coliform, copper, and nitrate discharge into the Discharger's collection system. Effluent limitations for ammonia, coliform, copper, and nitrate are included in this permit pursuant to CWC Section 13263.6(a).

15. Section 1.3 of the SIP requires the Regional Board to follow specific procedures for each priority pollutant with an applicable criterion or objective to determine if a water quality based effluent limitation is required. In evaluating compliance with the CTR and SIP for this new Order, Regional Board staff utilized ambient surface water quality data from Old River just upstream of the discharge point and at the Harvey Banks Pumping Plant intake about 8 miles downstream of the discharge point. **Attachment C** summarizes receiving water data, maximum effluent concentrations (MECs) and includes aquatic life and human health criteria and Basin Plan objectives for each priority pollutant and other constituents.

16. In May 1995, the State Board adopted a revised Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan). This plan establishes water quality control measures which contribute to the protection of beneficial uses in the Bay-Delta Estuary. The Bay-Delta Plan consists of: (1) beneficial uses to be protected; (2) water quality objectives for the reasonable protection of beneficial uses; and (3) a program of implementation for achieving the water quality objectives. This plan supplements other water quality control plans adopted by the State Board and regional water quality control boards (RWQCBs), and State policies for water quality control adopted by the State Board, relevant to the Bay-Delta Estuary watershed. The water quality objectives in the 1995 Bay-Delta Plan apply to the waters of the San Francisco Bay system waters within the legal boundary of the Sacramento-San Joaquin Delta, as specified by the objectives. Tables 1, 2, and 3 in the plan contain the water quality objectives for the protection of municipal and industrial, agricultural, and fish and wildlife beneficial uses, respectively, and have been incorporated into the Basin Plan as Tables III-5 A, B, and C.

17. Thermal water quality objectives for Old River and the Reclamation District No. 800 drainage ditch are outlined in the *Water Quality Control Plan for Control of Temperature in Coastal Interstate Waters and Enclosed Bays and Estuaries of California* (Thermal Plan), last amended by the State Board on 18 September 1975. Based on the water body definitions in the plan, the Reclamation District No. 800 drainage ditch and the section of Old River at the discharge points are considered part of an estuary (waters extending from a bay or the open ocean to the upstream limit of tidal action), the Sacramento-San Joaquin River Delta Estuary.

18. In July and August 2002 respectively, the Discharger submitted a diffuser design and zone of initial dilution (ZID) report and an Old River dilution and assimilative capacity analyses report. Based on Regional Board's comments, a revised ZID report was submitted in December 2002. The diffuser design report modeled a range of combinations of discharge and receiving water conditions, including high and low river currents, high and low tides, and high and low effluent and receiving water densities. The preferred diffuser design consists of a 105-foot diffuser with 36 ports, each two inches in diameter and with a spacing of 3 feet on-center and will be located at the bottom of the river. The report using the Visual Plumes model, an EPA-approved program, predicts that under worst scenarios (an effluent discharge of 6.17 mgd and river velocity of zero and a river depth of 15 feet), the discharge will achieve a dilution of 10: 1 within a defined mixing zone of 105 feet wide, 6 feet deep (9 feet from river surface), and 2 feet in longitudinal diameter, and a dilution of 25:1 or greater within a defined mixing zone of 105 feet wide, 13.5 feet deep (1.5 feet from river surface), and 5 feet in longitudinal diameter.

    Provision G6 contained in this Order requires the Discharger to conduct a confirmation receiving water study and verify that Old River has assimilative capacity for copper, nitrate, and salts (electrical conductivity, total dissolved solids, and chloride), and allows the Regional Board to reopen the permit and incorporate findings and limitations into the Order if conditions are found that would result in poorer water quality than considered by the model and this Order.

19. The Discharger has been monitoring on a quarterly basis for chronic toxicity of the effluent in accordance with the procedure outlined in EPA 600/4-91/002 (*Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Water to Freshwater Organisms*) and EPA 505/2-90-001 (*Technical Support Document for Water Quality Based on Toxic Control*). In March 1998, the tests indicated that the effluent sample was not toxic with respect to algal growth, fathead minnow growth, or *Ceriodaphnia* survival. However, there was a statistically significant reduction in *Ceriodaphnia* reproduction at 100% effluent, yielding a TU of 1.3. In addition, in December 2000, the tests this time indicated there was a significant reduction in both survival and reproduction of *Ceriodaphnia* and algal growth, and in June 2001, both survival and reproduction of *Ceriodaphnia* were significantly reduced. For the year 2002, in February *Ceriodaphnia* reproduction was significantly reduced, in May both survival and reproduction of *Ceriodaphnia* were again significantly reduced, and in August, growth of fathead minnows was significantly reduced. USEPA has recently published newly promulgated Toxicity test methods with an effective date of 19 December 2002. Therefore, the three species chronic toxicity test will be conducted using the USEPA October 2002 Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition EPA/821-R-02-013 using the species *Ceriodaphnia dubia*, *Pimephales promelas*, and *Selenastrum capricornutum*. **Provision G3** contained in this Order requires the Discharger to perform a study on the effluent to determine if it is chronically toxic.

20. Existing Order No. 99-096 prohibits the discharge from changing the surface water **temperature** more than 4 ^{o}F above the natural temperature of the receiving waters at any time or place as specified in the thermal plan. Natural receiving water temperature is defined in the thermal plan as "The temperature of the receiving water at locations, depth, and times which represent conditions unaffected by any elevated temperature waste discharge or irrigation return waters". The Discharger has complied with this temperature limitation in Old River, but has had difficulty in meeting this objective at the Reclamation District No. 800 drainage ditch. For the past two years, the monitoring reports show that the receiving water temperature at the Reclamation District No. 800 drainage ditch (discharge point 002) has consistently been increased with temperature levels ranging from 4.5-14.2 ^{o}F (average of 7.4 ^{o}F) for most of the year except in September, October and November 2001. The Discharger indicates this is largely attributable to the nature of this section of the drainage ditch. There is an earth dam about 600 feet upstream of discharge point 002, and Reclamation District No. 800 uses a gate near the dam in order to circulate water through the drainage ditch. However, this gate is only kept open as long as there is enough water pressure to keep it draining into the ditch on the south side of the dam. When the gate is closed, the water sits stagnant, and this contributes to the cause of the temperature violations. Allowing better circulation in the drainage ditch should reduce the number of violations. In addition, once the new plant is completed, the discharge point 002 will be discontinued and the new point of discharge 003 from the new facility further downstream in the drainage ditch will change the location of the point of compliance with the receiving water temperature limitation, and additional data will be collected to determine if additional receiving water violations will occur. Furthermore, once

the Discharger completes its direct discharge to Old River (discharge point 001A) and discontinues using discharge point 003, the Discharge should be able to comply with the temperature receiving water limitation in Old River.

21. The Basin Plan requires that the **dissolved oxygen** (DO) content within the legal boundaries of the Delta which includes both receiving waters, Old River and the Reclamation District No. 800 drainage ditch be equal to or greater than 5.0 mg/l. As previously indicated, water in the upstream section of the drainage ditch sits stagnant, thus causing the DO levels in this section of the drainage ditch to fall well below 5.0 mg/l. Although at times monitoring of the drainage ditch appears to show that the discharge is in violation of its DO receiving water limitation, actual effluent data shows that the discharge may not have caused the decrease in DO content. Monitoring reports for the past two years show that the effluent DO content has consistently been above 5 mg/l with a range between 6.5 mg/l to 12.5 mg/l. In addition, once the new plant is completed, the new point of discharge 003 from the new facility further downstream in the drainage ditch will change the location of the point of compliance with the receiving water DO limitation. Furthermore, once the Discharger completes its direct discharge to Old River (discharge point 001A) and discontinues using discharge points 002 and 003, the Discharger should have no problems complying with the DO receiving water limitation in Old River, since for the past few years this part of Old River has been in compliance with the receiving water limitation for DO required for Delta waters.

NONPRIORITY POLLUTANTS

22 **Ammonia** concentrations in the effluent ranged from 0.1-1.2 mg/l with a pH range of 7.0 to 8.1 and a temperature range of 15 ^{0}C to 26.3 ^{0}C based on samples collected between 1999 and 2002. Ammonia was detected in Old River (at R1 monitoring station) with a maximum concentration of 1.0 mg/l from samples taken in 2002. Untreated domestic wastewater contains ammonia. Wastewater treatment plants commonly use nitrification and denitrification processes to remove ammonia from the waste stream. Nitrification is a biological process that converts ammonia to nitrate, and denitrification is a process that converts nitrate to nitrogen gas, which is then released to the atmosphere. The Discharger currently operates its oxidation ditch in a manner that nitrifies and denitrifies its effluent and discharges low concentrations of ammonia. Because ammonia is in all domestic wastewater failure to operate the wastewater treatment plant in nitrification mode would present a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan prohibition against the discharge of toxic constituents in toxic concentrations. Ammonia is known to cause toxicity to aquatic organisms in surface waters. The USEPA has published revised ambient water quality criteria for Ammonia (1999 Ammonia Update), superseding all previous USEPA recommended freshwater criteria for ammonia. The new criteria incorporate revisions where the acute criterion (1-hour average) for ammonia is now dependent on pH and fish species and the chronic criterion (30-day average) is dependent on pH and temperature, and at temperatures lower than 15^{o}C is also dependent on fish species. Based on the available data, it seems that worst-case scenarios would be when pH is 8.1 and temperature is 26 ^{o}C. Under these conditions, the U.S. EPA's ambient water quality criteria for ammonia are 4.64 mg/l (Salmonids Present) and 6.95 mg/l (Salmonids Absent) as a 1-hour average (acute) and 1.00

mg/l as a 30-day average (chronic). The highest ammonia concentration reported (1.2 mg/l) exceeds the chronic criterion under worst case conditions, and therefore the effluent has the reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan Narrative toxicity objective with respect to ammonia. The single detected background concentration for Old River may be questionable, but without additional adequate data, and to be protective of the aquatic beneficial uses, it will still be considered. Based on the limited available information, both the effluent and Old river concentrations under worst-case conditions, exceed ambient water quality criteria for ammonia, and therefore **no dilution** can be granted when discharging to Old River. The previous permit included an effluent limitation for ammonia in a table format, dependent only on pH, where the 30 day average limit did not vary with temperature. This Order will continue to include an effluent limitation for ammonia, which will vary with effluent pH and temperature for fish early life stages present as shown on Attachment F (chronic-30-day averages) and Attachment G (acute-1-hour-averages) which is applicable when discharging to the Reclamation District No. 800 ditch and Old River. Effluent data for the past years show that the Discharger has been in compliance with the previous ammonia limitation and will be able to comply with the new limitation which includes a minor change, the variation with temperature.

23. **Nitrate** concentrations (as N) in the effluent ranged from 2.7-16 mg/l based on 10 samples taken between 1999 and 2002, with an average of 7.8 mg/l. The maximum background concentration for Nitrate (as N) in Old River was 2.3 mg/l based on samples taken in 2002. As previously indicated, the Discovery Bay WWTP operates its oxidation ditch in nitrification and denitrification mode, however, inadequate or incomplete denitrification may result in the discharge of nitrate to the receiving stream. The Basin Plan requires that waters designated as domestic or municipal supply shall not exceed the Maximum Contaminant Level (MCL), as specified in Title 22 of the California Code of Regulations (CCR). The MCL for nitrates, established by Title 22, is 10 mg/l (as N) or 45 mg/l (as NO_3). The conversion of ammonia to nitrates presents a reasonable potential for the discharge to exceed the Primary Maximum Contaminant Level for nitrate. In addition, based on the maximum effluent concentration, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the MCL for nitrate. As previously indicated, this Order addresses the change in the discharge point location, considering a direct discharge into Old River, and any new limitations for nitrate will not be in effect until after completion of the direct discharge into Old River. Therefore, this Order includes an effluent limitation for nitrate as a monthly average of 87 mg/l (as N) or 392 mg/l (as NO_3) when discharging directly into Old River based on the MCL and a conservative dilution of 10:1 within a mixing zone (starting at the bottom of the river) of 6 feet deep (9 feet from river surface), 105 feet wide, and 2 feet in diameter. This limit is effective upon completion of the direct discharge to Old River or by 1 June 2004.

24. **Electrical Conductivity (EC)** concentrations in the effluent ranged from 1900-2300 µmhos/cm with a maximum 30-day average of **2200** µmhos/cm based on results from samples collected between 2000 and 2002. Ambient background data (as presented in the 7 August 2002 Old River Dilution and Assimilative Capacity Analysis report) at monitoring station R1 in Old River ranged from 223-976 µmhos/cm, with a maximum 30-day running average of **923**

µmhos/cm between 1 September and 31 March, and a maximum 30-day running average of **604** between 1 April and 31 August. In addition, ambient background data at Harvey Banks pumping plant in Old River showed EC levels ranging from 215-725 µmhos/cm with a maximum 30-day running average of **725** µmhos/cm between 1 September and 31 March, and a maximum 30-day running average of **519** between 1 April and 31 August. For EC, the secondary MCL recommended range is 900 µmhos/cm, the upper range is 1600 µmhos/cm, and the short term range is 2200 µmhos/cm. The Agricultural Water Quality Goal is 700 µmhos/cm. For EC, because there are site specific Basin Plan objectives, the seasonal water quality objectives for the protection of agricultural uses included in Table 2 of the 1995 Bay Delta Plan (incorporated as table III-5B in the Basin Plan), then these become the applicable standards and they are **700** µmhos/cm (growing season) as a 30-day average from 1 April through 31 August, and **1000** µmhos/cm (non-growing season) as a 30-day average from 1 September through 31 March. The Sacramento–San Joaquin Delta has been listed as an impaired waterbody pursuant to Section 303(d) of the Clean Water Act due to EC, the section impaired by EC only applies to 16,000 acres out of a total of 48,000 acres, known as the South Delta. The Reclamation District No. 800 channel and the section of Old River in the vicinity of the discharge are part of the South Delta. However based on the available data, this section of Old River is not impaired by EC. The Discharge, however, does have a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan seasonal objectives for the protection of agricultural uses. As previously indicated, this Order addresses the change in the discharge point location, considering a direct discharge into Old River, and any new limitations for EC will not be in effect until after completion of the direct discharge into Old River. Therefore, this Order includes an effluent limitation for EC when discharging to Old River, established as 2925 µmhos/cm as a monthly average based on the seasonal growing agricultural water quality objective, and a conservative available dilution of 25:1 within a mixing zone (starting at the bottom of the river) of 13.5 feet deep (1.5 feet from river surface), 105 feet wide, and 5 feet in diameter. This limit is effective upon completion of the direct discharge to Old River or by 1 June 2004.

25. **Total Dissolved Solids (TDS)** concentrations in the effluent ranged from 1200-**1600** mg/l with an average of 1290 mg/l based on results from 30 samples collected between 2000 and 2002. Ambient background data for TDS at monitoring station R1 in Old River ranged from 180-430 mg/l with an average of 296 mg/l from samples taken in 2002. However, ambient background data at Harvey Banks pumping plant in Old River for TDS ranged from 123-**388** mg/l with an average of 240 mg/l based on samples taken between 2000 and 2002. For TDS, the secondary MCL recommended range is 500 mg/l, the upper range is 1000 mg/l, and the short term range is 1500 mg/l. The Agricultural Water Quality Goal for TDS is 450 mg/l, a value that represents a guideline for interpreting water quality for irrigation. The previous permit required the Discharger to provide information as to the source of TDS, provide methods to reduce salt loading, and provide information as to whether the levels of TDS in the discharge cause or contribute to an in-stream excursion in Old River above a water quality objective. Based on the available and submitted information, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the agricultural water quality goal. As

previously indicated, this Order addresses the change in the discharge point location, considering a direct discharge into Old River, and any new limitations for TDS will not be in effect until after completion of the direct discharge into Old River. Therefore, this Order includes an effluent limitation for TDS, when discharging to Old River, established as 1990 mg/l as a monthly average. The limitation is based on the agricultural water quality goal and a conservative available dilution of 10:1 within a mixing zone (starting at the bottom of the river) of 6 feet deep (9 feet from river surface), 105 feet wide, and 2 feet in diameter. This limit is effective upon completion of the direct discharge to Old River or by 1 June 2004.

26. Municipal and domestic supply, agricultural irrigation, and body contact water recreation are beneficial uses of Old River and Reclamation District No. 800 drainage ditch based on the Basin Plan designation of the Delta. **Total Coliform** limits are imposed to protect the beneficial uses of the receiving water, including public health through contact recreation and drinking water pathways. The previous permit included total coliform effluent limitations that protected contact recreation in Old River, but did not protect full submersion contact recreation and agricultural irrigation within the Reclamation District No. 800 drainage ditch because the beneficial uses were believed not to exist. Previous letters from the Contra Costa Environmental Health Department, dated 11 March 1999, and Discovery Bay Yacht Harbor, dated 27 February 1998, Checchini & Checchini property owner, dated 27 February 1998, Jorgen V. Lunding, property owner, dated 18 March 1998, and Reclamation District No. 800, dated 4 March 1998 and 3 March 1999, concluded that the contact recreational uses of the ditch do not reasonably exist from the point of discharge into the ditch up to the pumping station point just before being pumped into Old River. In addition Contra Costa County Department of Health Services letter dated 11 March 1999 sent to the Regional Board stated that they had performed a survey on 10 March 1999 of the reclamation ditch and observed no recreational use or evidence of recreational use of the ditch and no agricultural irrigation pumps were observed in the ditch other than those that discharge into Old River. However, a recent State Board decision (Order WQ 2002-0015 regarding the City of Vacaville WWTP) provided guidance on implementing Basin Plan beneficial use designations and resulting limitations to protect these uses. Some of the issues addressed by the State Board Order would be relevant to Discovery Bay discharge to the reclamation ditch. Renewal of the existing Discovery Bay NPDES permit in June 2004 would have resulted in reestablishing contact recreation and agricultural irrigation as beneficial uses of the reclamation ditch unless a Basin Plan amendment was adopted dedesignating those uses. Since discharges to the reclamation ditch are prohibited by this Order after 1 June 2004, the issue of designation/dedesignation of beneficial uses of the reclamation ditch has become a non-issue.

In a letter to the Regional Board dated 8 April 1999, the California Department of Health Services (DHS) indicated that for wastewater discharged to water bodies with identified beneficial uses of irrigation or contact recreation and where the wastewater receives dilution of more than 20:1, it would be considered adequately disinfected if the effluent coliform concentration does not exceed 23 MPN/100 m*l* as a 7-day median and if the effluent coliform concentration does not exceed 240 MPN/100 ml more than once in any 30 day period. As previously indicated, this Order addresses the change in the discharge point location (direct

discharge into Old River) and any new limitations for total coliform will not be in effect until after completion of the direct discharge into Old River. The current effluent total coliform organisms limitations for the Discharger include a monthly median of 23 MPN/100 m*l* and a daily maximum of 500 MPN/100 m*l*. Therefore, the 23 MPN/100 ml limitation is found to be appropriate as a 7-day median, and the daily maximum will be established as 240 MPN/100 ml effective upon completion of the direct discharge into Old River or by 1 June 2004. Based on a review of the effluent monitoring, the Discharger is already able to meet the new limitations; therefore, no time schedule for compliance is included in this Order.

27. **Chloride** concentrations in the effluent ranged from 310-**460** mg/l based on results from samples collected between 2000 and 2002. Samples taken by the Discharger show that chloride concentrations in Old River ranged from 28-**170** mg/l with an average of 97 mg/l, based on samples taken in 2002. Other ambient background data at Harvey Banks pumping plant in Old River for chloride ranged from 25-**147** mg/l with an average of 71 mg/l based on samples taken between 2000 and 2002. The secondary MCL recommended range for chloride is 250 mg/l, the upper range is 500 mg/l, and the short term range is 600 mg/l. USEPA's National Ambient Water Quality Criteria for chloride for the Protection of Freshwater Aquatic Life is 230 mg/l, as a 4-day average, and 860 mg/l as a 1-hour average. The 1995 Bay Delta Plan Table 1 (incorporated as table III-5A in the Basin Plan) also includes a MUN water quality objective for chloride of 250 mg/l at a downstream location of the discharge at the Delta Mendota Canal at Tracy Pumping Plant, and an IND water quality objective of 150 mg/l (applicable at most 240 days in a year) at an upstream location of the discharge at the Contra Costa Canal Pumping Plant #1. The Agricultural Water Quality goal for chloride is 106 mg/l. However, because there is a site-specific Basin Plan objective of 250 mg/l about 10 miles downstream of the discharge point, and another site specific objective of 150 mg/l about 25 miles upstream (which can be influenced by Old River reversal flows) then these objectives become the applicable standards. Based on this information, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the site specific Basin Plan objectives. As previously indicated, this Order addresses the change in the discharge point location, considering a direct discharge into Old River, and any new limitations for chloride will not be in effect until after completion of the direct discharge into Old River. Therefore, this Order includes an effluent limitation for chloride when discharging to Old River, established as 650 mg/l as a monthly average based on the secondary MCL or MUN site specific objective and allowing a conservative dilution of 5:1, and based on the IND site specific objective and allowing a dilution of 25:1, and 860 mg/l as a daily maximum based on the USEPA ambient water quality acute toxicity criterion with no dilution allowed. These limits are effective upon completion of the direct discharge to Old River or by 1 June 2004.

PRIORITY POLLUTANTS

28. **Copper** concentrations in the effluent ranged from 5.4 to 51 µg/l (as total recoverable) in samples collected between 2000 and 2002. The maximum background concentration for total copper at Old River (monitoring stations R1 and R2) is 6.2 µg/l based on data submitted in the

monitoring reports and excluding outliers. However, this receiving water data is being considered inappropriate for this particular pollutant because it has been collected from the shore zone of Old River influenced by the Discharger's effluent and the Reclamation District No. 800 agricultural drainage pump station, and does not necessarily represent bulk river water quality. Therefore other representative data was used, data collected at the Harvey Banks pumping plant about 10 miles downstream of the discharge point into Old River. The maximum background concentration for total copper at the Harvey Banks pumping plant is 4.2 µg/l. The Basin Plan includes a site-specific receiving water objective for dissolved copper of 10 µg/l (independent of hardness), which translates to a total recoverable concentration of 10.4 µg/l (using the default USEPA conversion factor of 0.96). The CTR Water Quality Criteria for copper expressed as total concentrations for the protection of freshwater aquatic life for acute and chronic scenarios are 8.8 µg/l and 6.1 µg/l respectively based on the worst case Old River hardness of 61 mg/l as $CaCO_3$. Based on available data, the effluent has the reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for freshwater species, and the site-specific Basin Plan objective. The previous permit included an effluent limitation of 10 µg/l as a daily maximum, 20 µg/l as a 4-day average, and 31 µg/l as a 1-hr average. The 31 µg/l as a 1-hr average has been deleted from this Order since 10 µg/l as a daily maximum is much more restrictive than the 1-hr average. The Discharger could not comply with these copper effluent limitations and therefore a compliance schedule was included in CDO No. 99-097. The final compliance date was 1 September 2002, and the discharger has not been able to meet this compliance date. To comply with the copper effluent limitation the Discharger has evaluated alternatives and has elected to construct a diffuser for direct discharge into Old River and use the available dilution in Old River within a mixing zone. Therefore, this Order addresses the change in point of discharge location. A corresponding CDO will consider a new time schedule for construction of a new outfall with a diffuser for direct discharge into Old River. The new effluent limitations for the protection of freshwater species are hardness dependent and were calculated using SIP procedures as shown in **Attachment E,** applying a conservative dilution of 25:1 within a mixing zone of 13.5 feet deep (1.5 feet from river surface), 105 feet wide, and 5 feet in diameter for the chronic toxicity criterion and a dilution of 10:1 within a mixing zone of 6 feet deep (9 feet from river surface), 105 feet wide, and 2 feet in diameter for the acute toxicity criterion. To determine compliance with this limitation, the applicable hardness will be the receiving water hardness at the R1A monitoring station. In addition, in order to comply with the site-specific basin plan Delta copper objective, an effluent maximum daily limit of 165 µg/l was established and only applicable when receiving water hardness is greater than 135 mg/l. Full compliance with these final limitations is not required by this Order until 1 June 2004. In the meantime, interim effluent limits based on plant performance are established in the revised CDO and are in effect through 31 May 2004.

29. The Sacramento–San Joaquin Delta has been listed as an impaired waterbody pursuant to Section 303(d) of the Clean Water Act because of: (1) diazinon and chlorpyrifos (organophosphate pesticides), (2) Group A-organochlorine pesticides {aldrin, chlordane, dieldrin, endosulfan (alpha, beta, sulfate), endrin, endrin aldehyde, 4,4'DDT, heptachlor, heptachlor epoxide, hexachlorocyclohexane (alpha, beta, delta and lindane), and

toxaphene}, and (3) unknown toxicity. The Basin Plan objectives regarding pesticides include:

a. no individual pesticides shall be present in concentrations that adversely affect beneficial uses,
b. discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affects beneficial uses,
c. total chlorinated hydrocarbon pesticide concentrations shall not be present in the water column at detectable concentrations, and
d. pesticide concentrations shall not exceed those allowable by applicable antidegradation policies.

Organophosphate pesticides, diazinon and chlorpyrifos, are commonly-used insecticides found in many domestic wastewater discharges at concentrations which can cause toxicity in both the effluent and in the receiving water. Samples taken in 2002 found diazinon and chlorpyrifos in the effluent to be **non detect (<0.5 µg/l and <0.6 µg/l respectively)**. The Discharger will however, be required to monitor for diazinon and chlorpyrifos. The Basin Plan's requirement that persistent chlorinated hydrocarbon pesticides shall not be present in the water column in detectable concentrations is the most stringent criterion for the regulation of the Group A-**organochlorine pesticides**. The Organochlorine pesticides were analyzed in the effluent and receiving water on samples taken in 2002. The results **were non-detect in both the effluent and receiving water**. Although, these constituents are listed under the California 303(d) list as pollutants causing impairment in the Sacramento-San Joaquin Delta, because of site specific results of non-detect, this Order does not include an effluent limitation for group A-organochlorine pesticides.

30. **Mercury** was detected in the effluent on all 5 samples taken in 2002 using a "clean technique" USEPA Method 1631 with concentrations ranging from 0.0026-0.0055 µg/l. Mercury was also detected in all 5 samples taken from Old River, upstream of the discharge point, with concentrations ranging from 0.0015-0.0041 µg/l. The current USEPA's ambient water quality criterion (expressed as dissolved concentrations) for continuous concentration of mercury is 0.77 µg/l (4-day average, chronic criteria), and the CTR (expressed as total recoverable) concentration for the human health protection for consumption of water and aquatic organisms is 0.050 µg/l. Mercury is listed under the California 303(d) list as a pollutant causing impairment in the Sacramento-San Joaquin Delta. This listing is based partly on elevated levels of mercury in fish tissue. Because the Sacramento-San Joaquin Delta has been listed as an impaired water body for mercury based on fish tissue impairment, the discharge must not cause or contribute to increased mercury levels in fish tissue.
The Regional Board plans to adopt Total Maximum Daily Loads (TMDLs) for mercury in the Sacramento-San Joaquin Delta by December 2005. When the TMDL is complete, the Regional Board will adopt appropriate water quality based concentration and mass loading effluent limits for the discharge. For situations like this, the SIP recommends that mass loading of the bioaccumulative pollutant should be limited in the interim to representative, current levels pending development of applicable water quality standards. Until the TMDL is

completed and water quality based effluent limits are prescribed, an interim, performance based, mass loading limit will be prescribed.

The existing analyses of mercury are sufficient to determine reasonable potential but are not a sufficient database to determine an annual interim mass effluent limitation, therefore this permit does not contain an interim performance-based effluent limit for mercury until additional data are obtained. **Provision G5** of this Order requires the Discharger to conduct 1 year of monthly monitoring for mercury in the effluent, using a "clean technique" USEPA Method 1631, with monthly mass loadings being calculated for each calendar month, and allows the Regional Board to reopen the permit to establish an interim effluent mass limit for mercury. The final effluent limit for mercury will be determined from an approved TMDL.

GROUNDWATER

31. The beneficial and potential beneficial uses of the underlying groundwater are municipal and domestic, industrial service and process, and agricultural supply.

32. Basin Plan water quality objectives to protect the beneficial uses of groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity of groundwater, and taste and odor. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, or animals. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial uses or that exceed the maximum contaminant levels (MCLs) in Title 22, CCR. The taste and odors objective states that groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that groundwaters do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

33. State Board Resolution No. 68-16 (hereafter Resolution 68-16) requires the Regional Board in regulating discharge of waste to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in water quality plans and policies (e.g., quality that exceeds water quality objectives). Resolution 68-16 requires that the discharge be regulated to meet best practicable treatment of control to assure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the State be maintained.

34. Domestic wastewater contains constituents such as total dissolved solids (TDS), specific conductivity, pathogens, nitrates, organics, metals and oxygen demanding substances (BOD). The Discharger utilizes lined sludge disposal ponds (with two feet of clay having a

permeability not exceeding 1 x 10^{-6} cm/sec) where wastewater percolates to groundwater, possibly resulting in an increase in the concentration of these constituents in groundwater. The increase in the concentration of these constituents in groundwater must be consistent with Resolution 68-16. Any increase in pollutant concentrations in groundwater must be shown to be necessary to allow wastewater utility service necessary to accommodate housing and economic expansion in the area and must be consistent with maximum benefit to the people of the State of California. Some degradation of groundwater by the Discharger could be consistent with Resolution 68-16 provided that:

a. the degradation is limited in extent;

b. the degradation after effective source control, treatment, and control is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order,

c. the Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures; and

d. the degradation does not result in water quality less than that prescribed in the Basin Plan.

35. Monitoring of the groundwater must be conducted to determine if the discharge has caused an increase in constituent concentrations when compared to background. The monitoring must, at a minimum, require a complete assessment of groundwater impacts, including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents which may have migrated to groundwater, and an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide best practicable treatment or control to comply with Resolution 68-16. Economic analysis is only one of many factors considered in determining best practicable treatment and control. Until groundwater monitoring is sufficient, this Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water quality objectives. If groundwater quality is found to have been degraded by the discharge for constituents where limitations reflect water quality objectives, the limitation is not intended as permission to increase the constituent concentration further during investigations. When investigations quantify what degradation if any may be reasonably anticipated and justified as resulting from best practicable treatment and control (BPTC) and as fully consistent with Resolution 68-16, this Order will be reopened and specific numeric limitations appropriate for this discharge situation established in updated waste discharge requirements.
36. The discharge to groundwater authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 et seq. (hereafter Title 27). The exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:

a. The waste consists primarily of domestic sewage and treated effluent;

b. The waste discharge requirements are consistent with water quality objectives; and

c. The treatment and storage facilities described herein are associated with municipal wastewater treatment plant.

37. This Order requires the Discharger to begin groundwater monitoring, in accordance with **Provision G8** contained in this order and includes a regular schedule of groundwater monitoring in the attached Monitoring and Reporting Program R5-2003-0067. The groundwater monitoring reports are necessary to evaluate impacts to waters of the state to assure protection of beneficial uses and compliance with Regional Board plans and policies, including Resolution 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.

38. Section 13267 of the California Water Code states, in part, "*(a) A regional board, in establishing…waste discharge requirements… may investigate the quality of any waters of the state within its region" and "(b) (1) In conducting an investigation…, the regional board may require that any person who…. discharges… waste…that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires."* The attached Monitoring and Reporting Program is issued pursuant to California Water Code Section 13267. The monitoring and reporting program to monitor groundwater required by this Order and the attached Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges waste subject to this Order.

STORMWATER

39. Federal Regulations for storm water discharges were promulgated by the U.S. Environmental Protection Agency on 19 November 1990. The regulations of 40 CFR Parts 122, 123, and 124 require specific categories of industrial activities, including Publicly Owned Treatment Works (POTW), which discharge storm water associated with industrial activity to obtain an NPDES permit and to implement Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology to control pollutants in industrial storm water discharges

40. The Discovery Bay Wastewater Treatment plant is covered under the General Storm Water Permit, Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001 for *Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities*. The Discharger has implemented a storm water pollution prevention plan and sampling/monitoring program for the facility.

GENERAL

41. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. This Order provides for an increase in the permitted volume and mass of pollutants discharged. The increase in volume and mass will result in degradation of high quality waters of the state. The increase, however, will not have significant impacts on aquatic life, which is the beneficial use most likely affected by the pollutants discharged (BOD, suspended solids, temperature, and metals) or other beneficial uses. The permit contains effluent limitations and other requirements to assure that the discharge will not unreasonably affect the beneficial uses of the receiving waters and will not exceed applicable water quality objectives. This Order specifically allows aquatic toxicity within a small mixing zone and the initial zone of dilution for copper. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The discharge is consistent with the maximum benefit to the people of the state. The increase in the discharge allows wastewater utility service necessary to accommodate housing and economic expansion in the area. The use of a wastewater treatment plant rather than individual systems is more protective of water quality. Mercury is listed under the California 303(d) list as a pollutant causing impairment in the Sacramento-San Joaquin Delta. With respect to mercury, this permit limits the discharge to levels discharged based on the existing discharge volume not the increase in volume allowed by this permit. Therefore, the increase in volume will not cause further degradation of the receiving water.

42. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.), requiring preparation of an environmental impact report or negative declaration in accordance with Section 13389 of the California Water Code. The Discharger has certified a final mitigated Negative Declaration (June 1998) in accordance with CEQA (Public Resources Code Section 21000, et seq.), and the State CEQA Guidelines for the expansion of their treatment plant to 2.1 mgd. The mitigations contained in the Negative Declaration are related to a potential erosion hazard and increase in mass of pollutants. The Board has reviewed the Negative Declaration and concurs that there are no significant impacts on water quality that are not mitigated by this Order.

43. The attached Monitoring and Reporting Program No. R5-2003-0067, and Attachments A through G are a part of this Order.

44. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

45. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

46. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect 50 days following permit adoption (effective 4 June 2003), provided EPA has no objections.

IT IS HEREBY ORDERED that Order No. 99-096 is rescinded and that the Town of Discovery Bay and ECO Resources, Inc., its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Prohibitions:

1. Discharge of wastewater at a location or in a manner different from that described in Finding No. 2 is prohibited.

2. Discharge to the Reclamation District No. 800 drainage ditch (discharge points 002 and 003) is prohibited after 1 June 2004.

3. The by-pass or overflow of untreated or partially treated wastes to surface waters is prohibited, except as allowed by Standard Provision A.13. (See attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements [NPDES]").

4. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

B. Effluent Limitations:

1. Prior to 1 June 2004, effluent discharged to Reclamation District No. 800 drainage ditch from discharge points 002 and 003 shall not exceed the following limits:

Constituents	Units	Monthly Average	Weekly Average	7-day Median	Daily Maximum	1-Hour Average
BOD[1,2]	mg/l	20	40		50	
	lbs/day[3]	350	700		875	

Constituents	Units	Monthly Average	Weekly Average	7-day Median	Daily Maximum	1-Hour Average
TSS[2]	mg/l	30	40		50	
	lbs/day[3]	525	700		875	
Settleable Solids	ml/l	0.1			0.2	
Total Coliform	MPN/100ml			23	500	
Copper	µg/l		20[4]		10	

	lbs/day[3]		350	175	
Ammonia	mg/l	Att F			Att G

[1] 5-day, 20°C biochemical oxygen demand (BOD).
[2] To be ascertained by a 24-hour composite.
[3] Based upon a design treatment capacity of 2.1 mgd
[4] 4-day average.

2. After construction of outfall and diffuser for direct discharge into Old River is completed, or by 1 June 2004, whichever is earlier in time, effluent discharged to Old River shall not exceed the following limits:

Constituents	Units	Monthly Average	Weekly Average	7-day Median	4-day Average	Daily Maximum
BOD[1,2]	mg/l	20	40			50
	lbs/day[3]	350	700			875
TSS[2]	mg/l	30	40			50
	lbs/day[3]	525	700			875
Ammonia	µg/l	Att F				Att G
	lbs/day[3]	[4]				[4]
Chloride	mg/l	650				860
	lbs/day[3]	11390				15071
Copper	µg/l	Att E				Att E[5]
	lbs/day[3]	[4]				[4]
Electrical Conductivity	µmhos/cm	2925				
Nitrate (as N)	mg/l	87				
	lbs/day[3]	1525				
Nitrate (as NO_3)	mg/l	392				
	lbs/day[3]	6870				
Settleable Solids	ml/l	0.1				0.2
Total Coliform	MPN/100ml			23		240
TDS	mg/l	1990				
	lbs/day[3]	34874				

[1] 5-day, 20°C biochemical oxygen demand (BOD).
[2] To be ascertained by a 24-hour composite.
[3] Based upon a design treatment capacity of 2.1 mgd.
[4] Using the value, in µg/l, determined from attachments E, F, and G, calculate the lbs per day limit by using the formula: 1/1000 x µg/l x 8.345 x 2.1 mgd = lbs/day.
[5] For instances when the receiving water hardness is greater than 135 mg/l, the applicable daily maximum limit becomes 165 µg/l.

3. The arithmetic mean of 20°C BOD (5-day) and total suspended solids in effluent samples collected over a monthly period shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85 percent removal).

4. The discharge shall not have a pH less than 6.5 nor greater than 8.5.

5. The average dry weather (May through October) discharge flow shall not exceed 1.3 mgd. Once the wastewater treatment plant improvements, described in Finding No. 5, are complete and on-line, as certified by a registered Civil Engineer with experience with the design and operation of wastewater treatment plants, as required by Provision G7, the average dry weather (May through October) discharge shall not exceed 2.1 million gallons per day.

6. Survival of aquatic organism in 96-hour bioassays of undiluted waste shall be not less than:

   Minimum for any one bioassay----------70%
   Median for any three or more consecutive bioassays------90%

C. Sludge Disposal:

1. Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste,* as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq.

2. Any proposed change in sludge use or disposal practice from a previously approved practice shall be reported to the Executive Officer and EPA Regional Administrator at least **90 days** in advance of the change.

3. Use and disposal of sewage sludge shall comply with existing Federal and State laws and regulations, including permitting requirements and technical standards included in 40 CFR 503.

   If the State Water Resources Control Board and the Regional Water Quality Control Boards are given the authority to implement regulations contained in 40 CFR 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR 503 whether or not they have been incorporated into this Order

4. The Discharger is encouraged to comply with the "Manual of Good Practice for Agricultural Land Application of Biosolids" developed by the California Water Environment Association.

D. Sludge Pond Limitations:

1. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the disposal areas or property owned by the Discharger.

2. The sludge ponds shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

3. The sludge ponds shall not have a pH less than 6.5 or greater than 9.0.

4. Ponds shall be managed to prevent breeding of mosquitoes. In particular,

   a. An erosion control program should assure the small coves and irregularities are not created around the perimeter of the water surface.

   b. Weeds shall be minimized.

   c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

5. Ponds shall have sufficient capacity to accommodate allowable sludge flow and design seasonal precipitation. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns. Freeboard shall never be less than two feet (measured vertically to the lowest point of overflow).

6. On or about **1 October** of each year, available pond storage capacity shall at least equal the volume necessary to comply with Sludge Pond Limitation No. 5.

7. Sludge ponds shall be constructed so that percolation of wastewater does not exceed 1×10^{-6} cm/sec.

E. Groundwater Limitations:

Release of waste constituents from any storage, treatment, or disposal component associated with the wastewater treatment plant shall not, in combination with other sources of the waste constituents, cause the following in groundwater:

1. Beneficial uses to be adversely impacted or water quality objectives to be exceeded.

2. Any constituent concentration, when compared with background, to be incrementally increased beyond the current concentration.

3. Any increase in total coliform organisms shall not exceed a most probable number of 2.2/100 ml over any seven-day period.

F. Receiving Water Limitations:

Receiving Water Limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit. However, a receiving water condition not in conformance with the limitation is not necessarily a violation of this Order. The Regional Board may require an investigation to determine cause and culpability prior to asserting a violation has occurred. The discharge shall not cause the following in the receiving water:

1. Concentrations of dissolved oxygen to fall below 5.0 mg/l.

2. Oils, greases, waxes, or other materials to form a visible film or coating on the water surface or on the stream bottom.

3. Oils, greases, waxes, floating material (liquids, solids, foams, and scums) or suspended material to create a nuisance or adversely affect beneficial uses.

4. Esthetically undesirable discoloration.

5. Fungi, slimes, or other objectionable growths.

6. Increases in turbidity over background levels shall not exceed the following limits:

    a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.
    b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
    c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.
    d. More than 10 percent where natural turbidity is greater than 100 NTUs.

7. The ambient pH to fall below 6.5, exceed 8.5, or the 30-day average pH to change by more than 0.5 units.

8. The surface water temperature to rise greater than 4 ^{O}F above the natural temperature of the receiving waters at any time or place.

9. Deposition of material that causes nuisance or adversely affects beneficial uses.

10. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

11. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.

12. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.

13. Violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Water Resources Control Board pursuant to the CWA and regulations adopted thereunder. If more stringent applicable water quality standards are approved pursuant to Section 303 of the CWA, or amendments thereto, the Regional Board will revise and modify this Order in accordance with such more stringent standards.

14. Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.

15. The fecal coliform concentration in any 30-day period to exceed a geometric mean of 200 MPN/100 ml or cause more than 10 percent of total samples to exceed 400 MPN/100 ml.

G. Provisions:

1. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

2. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

3. **Chronic Toxicity Testing:** The Discharger shall conduct the chronic toxicity testing specified in the Monitoring and Reporting Program. If the testing indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective for toxicity (other than salinity), the Discharger shall initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a workplan to conduct a Toxicity Reduction Evaluation (TRE) and, after Regional Board evaluation, conduct the TRE. This Order may be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. Additionally, if a chronic toxicity water quality objective is adopted by the State Water Resources Control Board, this Order may be reopened and a limitation based on that objective included.

4. **Summary Pollutant Data and Receiving Water Characterization Report**: There are indications that the discharge may contain constituents that have a reasonable potential to cause or contribute to an exceedance of NTR, CTR water quality objectives, or supplemental constituents that could exceed Basin Plan numeric or

narrative water quality objectives. The constituents are specifically listed in a letter for submission of a technical report requirement issued by the Executive Officer on 10 September 2001. The results of the study were required to be submitted to the Regional Board by 23 March 2003. A copy of that letter, including its attachments is incorporated into this Order as Attachments D through D4, and include NTR, CTR and additional constituents, which could exceed water quality standards, including Basin Plan numeric or narrative water quality objectives. The Discharger shall submit by **1 November 2004** the Dioxin study report.

This Provision is intended to be consistent with the requirements of the 10 September 2001 technical report request. The Discharger shall submit to the Regional Board on or before the compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board by letter when it returns to compliance with the time schedule.

If after review of the study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality standard this Order will be reopened and effluent limitations added for the subject constituents.

5. **Mercury Evaluation:** Due to the listing of mercury on the California 303 (d) list as a pollutant causing impairment of the Sacramento-San Joaquin Delta, the discharge must not cause or contribute to increased mercury levels in fish tissue to meet the requirements of the anti-degradation policy described in State Board Resolution No. 68-16 and the anti-degradation provision in 40 CFR 131.12 (a) (1). Therefore, the Discharger shall develop a mercury evaluation workplan acceptable to the Executive Officer by **1 November 2003**. The purpose of the workplan is to determine to what extent the Discharger may be contributing additional mass loadings of mercury into Old River. The workplan shall include 1 year of monthly monitoring for mercury using a "clean technique" USEPA Method 1631, with a final report due 4 months after the 1 year of monitoring with monthly mass loadings being calculated for each calendar month, and this Order may be reopened to establish an interim mass effluent limitation for mercury.

6. **Mixing Zone Model Receiving Water confirmation Study:** The Discharger's effluent contains copper, nitrate, and salts (Electrical Conductivity, Total Dissolved Solids, and chloride) at concentrations that exceed water quality objectives contained in the CTR and Basin Plan. Effluent limitations for these constituents have been established considering a completely mixed discharge within a specified mixing zone in Old River based on the Mixing Zone model submitted by the Discharger. The Discharger shall complete and submit a R*eceiving Water Confirmation Study Workplan* and time schedule for approval by the Executive Officer 6 months after completion of the new outfall and diffuser into Old River or by **1 December 2004**. The studies shall be conducted and results submitted in report format to the Regional Board by **1 June 2006.** A progress report shall be

submitted on a semi-annual basis, on **1 June 2005** and **1 December 2005** before the *Study* is completed. The results of this *Study* shall be of sufficient detail to confirm that Old River does have assimilative capacity for these constituents and the dilution credit granted was adequate in determining the effluent limitations of these constituents. The study will consider flow reversals in the river, which could concentrate constituents, and include the ten year, worst case, low flow condition, and the maximum concentration of these constituents. This Order may be reopened after review of the final *Study*, and findings and limitations incorporated into the Order as appropriate.

7. **Plant Expansion Certification**. The Discharger shall submit a technical report providing documentation of the existing treatment plant organic and hydraulic design capacity. The facility design shall be certified, by a Registered Civil Engineer with experience in the design and operation of wastewater treatment plants, that the facility is capable of providing a minimum of secondary treatment for the entire projected peak flows by achieving continuous compliance with the BOD, suspended solids, and total coliform limits established in the permit. If the plant treatment capacity is determined to be less than the 2.1 mgd design flow allowed by this Order, the Order may be reopened to establish new flow and mass effluent limitations.

8. **Hydrogeologic Evaluation and Groundwater Monitoring Tasks**. The Discharger shall complete a hydrogeologic investigation within the area affected and potentially affected by the Wastewater Treatment Plant and its discharge(s) to land **by 1 November 2004.**

   The technical report documenting the hydrogeologic investigation shall describe the underlying geology, existing wells (active and otherwise), local well construction practices and standards, well restrictions, hydrogeology and assess all impacts of the wastewater discharge on water quality. The groundwater quality must be monitored at least quarterly for a minimum of four quarters for U.S. EPA priority pollutants, nutrients, coliform organisms, pH, TDS and EC. The technical report must present, for each monitoring event, determinations for the direction and gradient of groundwater flow.

   The groundwater monitoring network shall include one or more background monitoring wells and sufficient number of designated monitoring wells to evaluate performance of BPTC measures and determine if the discharge has degraded groundwater. These include monitoring wells immediately downgradient of every treatment, storage, and disposal unit that does or may release waste constituents to groundwater with the exception of wastewater reclamation areas to which the Discharger applies effluent. The need for monitoring wells at reclamation areas will be determined on a case-by-case basis by Regional Board staff. All wells shall comply with appropriate standards as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981), and any more stringent standards adopted by the Discharger or county pursuant to CWC section 13801.

The existing well network will be evaluated, and the proposed network should include existing monitoring wells where they will serve to measure compliance or provide other relevant information (e.g., depth to groundwater). The Discharger shall install approved monitoring wells, properly destroy ineffective wells, and commence groundwater monitoring in accordance with this Order's Monitoring and Reporting Program. After the first sampling event, the Discharger shall report on its sampling protocol as specified in this Order's Monitoring and Reporting Program (MRP).

After one year of monitoring, the Discharger shall characterize natural background quality of monitored constituents in a technical report. If the monitoring shows that any constituent concentrations are increased above background water quality, the Discharger shall submit a technical report describing the evaluation's results and critiquing each evaluated component with respect to BPTC and minimizing the discharge's impact on groundwater quality. In no case shall the discharge be allowed to exceed a water quality objective. Where treatment system deficiencies are documented, the technical report shall provide recommendations for necessary modifications (e.g., new or revised salinity source control measures, WWTF component upgrade and retrofit) to achieve BPTC and identify the source of funding and proposed schedule for modifications for achieving full compliance prior to expiration of this Order. This Order may be reopened and additional groundwater limitations added.

9. The Discharger shall use the best practicable treatment or control technique currently available to limit mineralization to no more than a reasonable increment.

10. The Discharger shall report to the Regional Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986".

11. The Discharger shall comply with all of the items of the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)", dated 1 March 1991, which are part of this Order. This attachment and its individual paragraphs are referred to as "Standard Provision(s)."

12. The Discharger shall comply with the attached Monitoring and Reporting Program No. R5-2003-0067, which is part of this Order, and any revisions thereto, as ordered by the Executive Officer.

    When requested by USEPA, the Discharger shall complete and submit Discharge Monitoring Reports. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger Self Monitoring Reports.

13. This Order expires on **1 April 2008** and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than 180 days in advance of such

date in application for renewal of waste discharge requirements if it wishes to continue the discharge.

14. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:

    a. Wastes which create a fire or explosion hazard in the treatment works;

    b. Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;

    c. Solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;

    d. Any waste, including oxygen demanding pollutants (BOD, etc.), released in such volume or strength as to cause inhibition or disruption in the treatment works, and subsequent treatment process upset and loss of treatment efficiency;

    e. Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the Regional Board approves alternate temperature limits;

    f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

    g. Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems; and

    h. Any trucked or hauled pollutants, except at points predesignated by the Discharger.

15. Prior to making any change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of or clearance from the State Water Resources Control Board (Division of Water Rights).

16. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name, address, and telephone number of the persons responsible for contact with the Regional Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision D.6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 25 April 2003.

_____
THOMAS R. PINKOS, Executive Officer

RDJ:

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2003-0067

NPDES NO. CA0078590

FOR
THE TOWN OF DISCOVERY BAY
AND
ECO RESOURCES, INC.
DISCOVERY BAY WASTEWATER TREATMENT FACILITY
CONTRA COSTA COUNTY

Monitoring and Reporting Program is issued pursuant to Water Code 13267. This program to monitor groundwater and the surface water are necessary to assure compliance with the waste discharge requirements of this Order. The Discharger shall not implement any changes to this Program unless and until the Regional Board issues a revised Monitoring and Reporting Program. For purposes of evaluating compliance with the limitations of Order No. R5-2003-0067, the Discharger shall conduct monitoring and submit reports as specified below. Specific sample station locations have been established under direction of the Regional Board's staff, and a description of the stations is attached to this Order.

INFLUENT MONITORING

Samples shall be collected at approximately the same time as effluent samples and should be representative of the influent. Influent monitoring shall include at least the following:

Constituents	Units	Type of Sample	Sampling Frequency
Flow	mgd	Meter	Continuous
20°C BOD_5	mg/l, lbs/day	24 hr. Composite	Weekly
Suspended Solids	mg/l, lbs/day	24 hr. Composite	Weekly
pH	pH Units	Grab	Weekly
Temperature	^oF	Grab	Weekly
Total Dissolved Solids	mg/l	Grab	Monthly
Electrical Conductivity @25°C	µmhos/cm	Grab	Monthly
Priority Pollutants	µg/l	Grab	Annually

EFFLUENT MONITORING

Effluent samples shall be collected downstream from the last connection through which wastes can be admitted into the outfall. Effluent samples should be representative of the total volume and

quality of the discharge. Date and time of collection of samples shall be recorded and reported. Effluent monitoring shall include at least the following:

Constituents	Units	Type of Sample	Sampling Frequency
Flow	Mgd	meter	Continuous
Settleable Solids	ml/l	Grab	Daily
20°C BOD_5	mg/l, lbs/day	24 hr. Composite	2x Week
Suspended Solids	mg/l, lbs/day	24 hr. Composite	2x Week
Total coliform	MPN/100 ml	Grab	2x Week
pH	pH Units	Grab	Weekly
Temperature	^{o}F	Grab	Weekly
Ammonia[1,2]	mg/l	24-hr Composite	Weekly
Electrical Conductivity @25°C[1]	µmhos/cm	Grab	2x Monthly
Total Dissolved Solids[1]	mg/l, lbs/day	Grab	2x Monthly
Chloride[1]	mg/l, lbs/day	Grab	2x Monthly
Nitrate[1]	mg/l, lbs/day	Grab	2x Monthly
Copper[1,4] (Total)	µg/l, lbs/day	Grab	2x Monthly
Aluminum	µg/l, lbs/day	Grab	Monthly
Acute Toxicity[6]	% Survival	Grab	Monthly
Mercury[5]	µg/l, lbs/day	Grab	Monthly/Quarterly
Iron	µg/l, lbs/day	Grab	Quarterly
Standard Minerals[1,3]	mg/l	Grab	Annually
Priority Pollutants[1]	µg/l	Grab	Annually

1 To be collected concurrently with Old River water monitoring for these constituents.

2 Report as both Total and Un-ionized ammonia and to be collected concurrent with temperature and pH.

3 Standard minerals shall include calcium, magnesium, hardness, sodium, potassium, alkalinity, sulfate, chloride, boron, and nitrate, and include verification that the analysis is complete (i.e., cation/anion balance)..

4 To be collected concurrently with San Joaquin River water monitoring for hardness.

5 Requires use of "clean technique" (EPA Method 1631) for sampling, handling and analysis, or later amendment. Monthly for 1 year/Quarterly thereafter.

6 The bioassay shall be 96-hour acute toxicity test in accordance with EPA/821-R-02-012, fifth edition, or later amendment approved by Regional Board staff. Species shall be fathead minnows (Pimephales promelas). Ammonia, temperature and pH shall be recorded each day of the test. No pH adjustment.

If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed above, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

RECEIVING WATER MONITORING

(Reclamation District No. 800)

The following receiving water monitoring program shall be conducted during effluent discharges to Reclamation District No. 800 ditch. All receiving water samples shall be grab samples. Receiving water samples shall include at least the following:

Station	Description
R-1	Old River, 500 feet North from the point of discharge to Old River, point 001
R-2	Old River, 500 feet South from the point of discharge to Old River, point 001
R-3	Reclamation District No. 800, 500 feet North of Discharge point 002
R-4	Reclamation District No. 800, 500 feet South of Discharge point 002
R-5	Reclamation District No. 800, 200 feet North of Discharge point 003
R-6	Reclamation District No. 800, 500 feet South of Discharge point 003

Constituents	Units	Sampling Station[4]	Sampling Frequency
Dissolved Oxygen	mg/l	R-1 through R-6	2x Monthly
pH	pH units	R-1 through R-6	2x Monthly
Turbidity	NTU	R-1 through R-6	2x Monthly
Temperature	°C/°F	R-1 through R-6	2x Monthly
Electrical Conductivity @25°C[1]	µmhos/cm	R-1 through R-6	2x Monthly
TDS[1]	mg/l	R-1 through R-6	2x Monthly
Chloride[1]	mg/l	R-1 through R-6	2x Monthly
Hardness (as $CaCO_3$)[2]	mg/l	R-1, R-2	Monthly
Specific Constituents[3]	µg/l	R-1, R-2	Monthly

[1] To be collected concurrently with effluent monitoring for these constituents.

[2] To be collected concurrently with effluent monitoring for copper.

[3] Specific constituents include ammonia, copper, and nitrate.

[4] R-3 and R-4 need only be sampled when discharge occurs from discharge point 002. Also R-5 need not be sampled when there is no flow crossing the Hwy 4 culvert.

RECEIVING WATER MONITORING
(Old River)

Once direct discharge to Old River (diffuser) is completed and the discharge to the Reclamation District No. 800 ditch is eliminated, monitoring of the Reclamation District No. 800 ditch may be eliminated and the following receiving water monitoring shall become the receiving water monitoring program:

Station	Description
R-1A	Midstream of Old River, 500 feet North of discharge point 001A to Old River (diffuser)
R-2A	Midstream of Old River, 200 feet South of discharge point 001A to Old River (diffuser)

Constituents	Units	Sampling Station[4]	Sampling Frequency
Electrical Conductivity @25°C[1]	µmhos/cm	R-1A, R-2A	2x Monthly
TDS[1]	mg/l	R-1A, R-2A	2x Monthly
Chloride[1]	mg/l	R-1A, R-2A	2x Monthly
Dissolved Oxygen	mg/l	R-1A, R-2A	Monthly
pH	pH units	R-1A, R-2A	Monthly
Turbidity	NTU	R-1A, R-2A	Monthly
Temperature	°C/°F	R-1A, R-2A	Monthly
Hardness (as $CaCO_3$)[2]	mg/l	R-1A, R-2A	Monthly
Fecal Coliform	MPN/100 ml	R-1A, R-2A	Quarterly

[1] To be collected concurrently with effluent monitoring for these constituents.
[2] To be collected concurrently with effluent monitoring for copper

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Stations R-l and R-2, R-3 and R-4, R-5 and R-6 before completing the direct discharge into Old River, and R-1A and R-2A after completion of direct discharge into Old River. Attention shall be given to the presence or absence of:

a. Floating or suspended matter
b. Discoloration
c. Bottom deposits
d. Aquatic life
e. Visible films, sheens or coatings
f. Fungi, slimes, or objectionable growths
g. Potential nuisance conditions

Notes on receiving water conditions shall be summarized in the monitoring report.

THREE SPECIES CHRONIC TOXICITY MONITORING

Chronic toxicity monitoring shall be conducted to determine whether the effluent is contributing toxicity to the River in accordance with USEPA Methods EPA/821-R-02-013, fourth edition. Chronic toxicity samples shall be collected at the last point prior to entering the effluent discharge pipe. Twenty-four hour composite samples shall be representative of the volume and quality of the discharge. Time of sample collection shall be recorded. The effluent tests must be conducted with concurrent reference toxicant tests. Both the reference toxicant and effluent test must meet all test acceptability criteria as specified in the chronic manual. If the test acceptability criteria are not achieved, then the Discharger must re-sample and re-test within 14 days.

Chronic toxicity monitoring shall include the following:

Species: Pimephales promelas (larval stage), Ceriodaphnia dubia, and Selenastrum capricornutum

Frequency: Quarterly (January, April, July, and October)

Dilution Series:

	Dilutions (%)					Controls	
	100	75	50	25	12.5	Receiving Water	Lab Water
% WWTP Effluent	100	75	50	25	12.5	0	0
% Dilution Water*	0	25	50	75	87.5	100	0
% Lab Water	0	0	0	0	0	0	100

* - Dilution water shall be receiving water from Old River taken upstream from the discharge point. The dilution series may be altered upon approval of Regional Board staff.

SLUDGE MONITORING

A composite sample of sludge shall be collected annually in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and tested for the following metals:

Cadmium	Lead
Chromium	Nickel
Copper	Zinc

Sampling records shall be retained for a minimum of five years. A log shall be kept of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report.

1. Annually **by 30 January thereafter**, the Discharger shall submit:

a. Annual sludge production in dry tons and percent solids.

b. A schematic diagram showing sludge handling facilities and a solids flow diagram.

c. Depth of application and drying time for sludge drying beds.

d. A description of disposal methods, including the following information related to the disposal methods used at the facility. If more than one method is used, include the percentage of annual sludge production disposed by each method.

Six months prior to disposal of biosolids, the Discharger shall submit a plan to characterize the biosolids held within the sludge lagoon. **Two months** prior to disposal, the results of the sampling and analysis shall be submitted, along with the proposed disposal option. Suggested methods for analysis of sludge are provided in EPA publications titled "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods" and "Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater". Recommended analytical holding times for sludge samples should reflect those specified in 40 CFR 136.6.3(e). Other guidance is available in EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989.

GROUNDWATER MONITORING

An adequate groundwater monitoring network shall be defined in accordance with Provision G.8 of this Order. Wells shall comply with requirements of the Department of Water Resources. Groundwater grab samples shall be collected from all groundwater monitoring wells. Prior to sampling, the wells should be pumped until the temperature, specific conductivity, and pH have stabilized to ensure representative samples. Groundwater monitoring shall include at least the following:

Constituents	Units	Sampling Frequency
Depth to Groundwater	feet	Monthly
Groundwater Elevation[1]	feet	Monthly
pH	pH units	Monthly
Electrical Conductivity at 25ºC	µmhos/cm	Monthly
Nitrates (as N)	mg/l	Quarterly
Total Coliform Organisms	MPN/100 m*l*	Quarterly

[1] The groundwater elevation shall be used to calculate the direction and gradient of groundwater flow. Elevations shall be measured to the nearest one-hundredth of a foot from mean sea level. The groundwater elevation shall be measured prior to purging the wells. The groundwater monitoring network shall include one or more background monitoring wells and sufficient number of designated monitoring wells to evaluate performance of BPTC measures and determine if the discharge has degraded groundwater. These include monitoring wells immediately downgradient of every treatment, storage, and disposal unit that does or may release waste constituents to groundwater.

Groundwater monitoring results for the constituents above shall be submitted monthly; the monthly report shall include a site map showing the location and surveyed elevation (to nearest one-hundredth of foot above mean sea level) of the wells and the current direction of groundwater flow.

A groundwater report shall be submitted annually; the report shall contain a brief written description of any groundwater investigation and sampling work completed for the year, a site map showing the location of all monitoring wells, and tables showing all groundwater monitoring data collected during the previous calendar year, including groundwater depth and elevation data, pH, EC, and all other monitored constituents.

WATER SUPPLY MONITORING

A sampling station shall be established where a representative sample of the municipal water supply can be obtained. Water supply monitoring shall include at least the following:

Sampling Constituents	Units	Frequency
Standard Minerals	mg/l	Annually
Electrical Conductivity @ 25°C [1]	µmhos/cm	Annually
Total Dissolved Solids	mg/l	Annually
Chloride	mg/l	Annually

[1] If the source water is from more than one well, the EC shall be reported as a weighted average and include copies of supporting calculations.

REPORTING

Monitoring results shall be submitted to the Regional Board by the **1st day** of the second month following sample collection. Quarterly and annual monitoring results shall be submitted by the **1st day of the second month following each calendar quarter and year**, respectively.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month, and monthly averages should be determined and recorded.

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

By **30 January** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

a. The names, certificate grades, and general responsibilities of all persons employed at the WWTP (Standard Provision A.5).

b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

c. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.6).

d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

The Discharger may also be requested to submit an annual report to the Regional Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

All reports submitted in response to this Order shall comply with the signatory requirements of Standard Provision D.6.

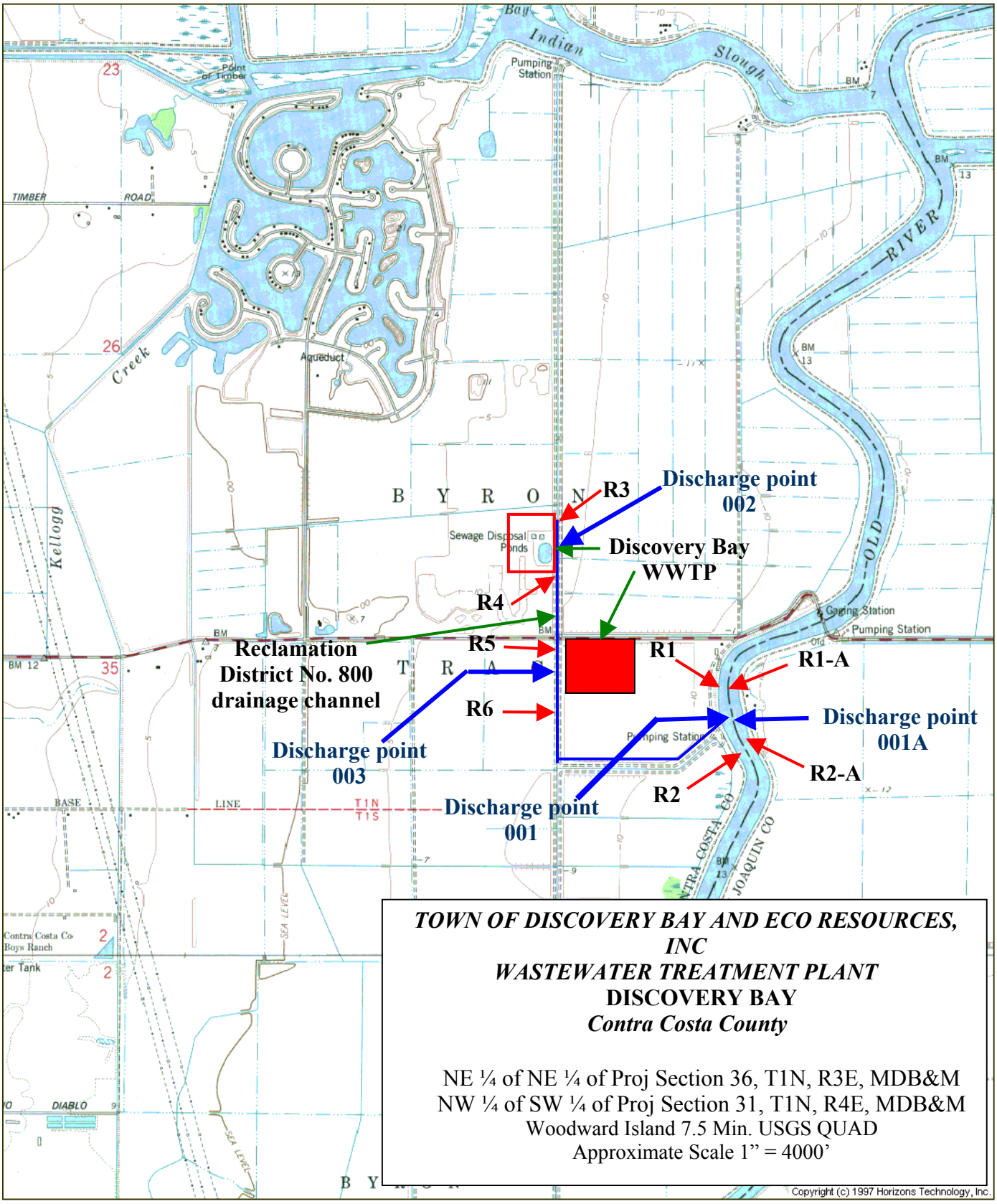
The Discharger shall implement the above monitoring program on the first day of the month following effective date of this Order.

Ordered By: THOMAS R. PINKOS, Executive Officer

25 April 2003
(Date)

RDJ.

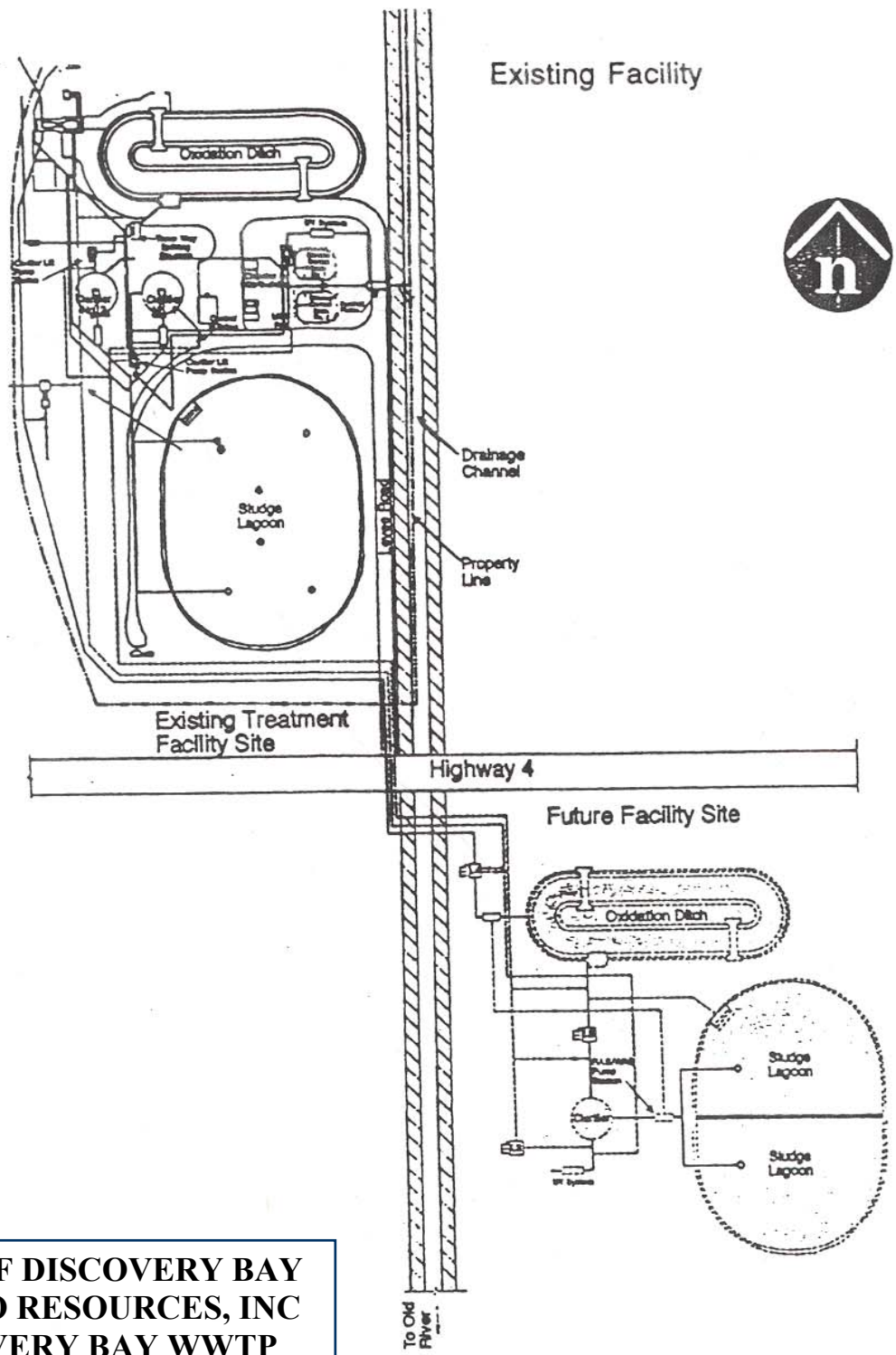
ATTACHMENT A



TOWN OF DISCOVERY BAY AND ECO RESOURCES, INC
WASTEWATER TREATMENT PLANT
DISCOVERY BAY
Contra Costa County

NE ¼ of NE ¼ of Proj Section 36, T1N, R3E, MDB&M
NW ¼ of SW ¼ of Proj Section 31, T1N, R4E, MDB&M
Woodward Island 7.5 Min. USGS QUAD
Approximate Scale 1" = 4000'

ATTACHMENT B



TOWN OF DISCOVERY BAY AND ECO RESOURCES, INC DISCOVERY BAY WWTP CONTRA COSTA COUNTY

ATTACHMENT C

DISCOVERY BAY WWTP RECEIVING WATER AND EFFLUENT DATA

Results of conventional water quality data collected in 2002 in applicable receiving waters

(Old River @ R1 and Reclamation 800 drainage ditch @R3)

OLD RIVER (R1)

Date	Conductivity (µmhos)	TDS (mg/l)	DO (mg/l)	pH	Temp (ºC)	Sulfate (mg/l)	Hardness (mg/l)	Ammonia (mg/l)	Nitrate as N (mg/l)
5/29/02	360	200		7.8		40		<0.1	2.3
6/19/02	280	180		7.8		22	80	<0.04	2
7/25/02	550	290		7.9		23	80	<0.04	1.8
8/28/02	660	380		8.0		26		0.1	1.9
9/18/02	810	430		8.0		36	120	1.0	2.2

RECLAMATION DISTRICT 800 DITCH (R3)

Date	Conductivity (µmhos)	TDS (mg/l)	DO (mg/l)	pH	Temp (ºC)	Sulfate (mg/l)	Hardness (mg/l)	Ammonia (mg/l)	Nitrate as N (mg/l)
5/29/02	650	370		8.0		74		0.2	3.0
6/19/02	960	520		8.2		91	160	0.3	3.8
7/25/02	550	320		7.8		51	110	0.1	2.3
8/28/02	2000	1200		8.3		140		0.3	6.3
9/18/02	1700	1000		7.9		140	220	2.4	6.2

ATTACHMENT C, CONT

RECEIVING WATER (OLD RIVER) DATA, PRIORITY POLLUTANTS

Constituent CTR # Date	Sb µg/L #1	As µg/L #2	Be µg/L #3	Cd µg/L #4	Cr Total µg/l	Cr (III) µg/L # 5a	Cr (VI) µg/L # 5b	Cu µg/L #6	Pb µg/L #7	Hg µg/L #8	Ni µg/L #9	Se µg/L #10	Silver µg/L #11	Thallium µg/L #12	Zn µg/L #13	Cyanide µg/L #14	Asb MF/l #15
5/29/02	<0.5	2.3	0.06	<0.04	1.1	1.1		3.4	0.33	0.0041	3.4	<0.5	<0.02	<0.03	9	0.6	
6/19/02	<0.2	2.2	<0.06	0.2	0.8	0.8	<0.15	2.7	0.29	0.0029	2.6	<0.5	<0.02	<0.03	23		
7/25/02	0.2	2.5	<0.06	<0.03	1.3	1.3	<0.15	2.6	0.27	0.0025	2.4	<0.5	<0.02	0.1	3	<0.9	
8/28/02	0.4	2.1	<0.06	<0.03	0.4	0.4	0.3	2.0	0.16	0.0017	1.8	0.5	<0.02	<0.03	2	<0.9	
9/18/02	0.2	3.0	<0.06	<0.03	<0.2	<0.2	<0.15	2.1	0.19	0.0015	2.0	<0.5	<0.02	<0.03	2	<0.9	
Observed Maximum SIP Section 1.4.3.1	0.4	3.0	0.06	0.2	1.3	1.3	0.3	3.4	0.33	0.0041	3.4	0.5	<0.02	0.1	23	0.6	N/A
Arithmetic Mean SIP Section 1.4.3.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.044	N/A	N/A	N/A

RECEIVING WATER (RECLAMATION DISTRICT 800 DRAINAGE DITCH) DATA, PRIORITY POLLUTANTS

Constituent CTR # Date	Sb µg/L #1	As µg/L #2	Be µg/L #3	Cd µg/L #4	Cr Total µg/l	Cr (III) µg/L # 5a	Cr (VI) µg/L # 5b	Cu µg/L #6	Pb µg/L #7	Hg µg/L #8	Ni µg/L #9	Se µg/L #10	Silver µg/L #11	Thallium µg/L #12	Zn µg/L #13	Cyanide µg/L #14	Asb MF/l #15
5/29/02	<0.5	3.2	<0.06	<0.04	4.0	4.0		5.9	0.57	0.0059	5.5	<0.5	<0.02	<0.03	14	0.9	
6/19/02	<0.2	4.0	<0.06	<0.03	0.9	0.9	<0.15	4.3	0.28	0.0037	3.8	<0.5	<0.02	<0.03	16		
7/25/02	0.4	6.4	<0.06	<0.03	2.0	2.0	<0.15	5.0	0.40	0.0040	4.3	<0.5	<0.02	0.1	6	<0.9	
8/28/02	0.3	3.4	<0.06	0.03	0.6	0.6	0.4	4.7	0.28	0.0030	3.7	0.8	<0.02	<0.03	16	<0.9	
9/18/02	0.2	3.6	<0.06	<0.03	0.4	0.4	<0.15	4.5	0.32	0.0028	3.9	<0.5	<0.02	<0.03	11	<0.9	
Observed Maximum SIP Section 1.4.3.1	0.4	6.4	<0.06	0.03	4.0	4.0	0.4	5.9	0.57	0.0059	5.5	0.8	<0.02	0.1	16	0.9	N/A
Arithmetic Mean SIP Section 1.4.3.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.044	N/A	N/A	N/A

SUMMARY DISCOVERY BAY EFFLUENT DATA AND CRITERIA, PRIORITY POLLUTANTS

CTR Constituent Sample Date	Sb µg/L #1	As µg/L #2	Be µg/L #3	Cd µg/L #4	Cr Total µg/l	Cr (III) µg/L # 5a	Cr (VI) µg/L # 5b	Cu µg/L #6	Pb µg/L #7	Hg** µg/L #8	Ni µg/L #9	Se µg/L #10	Silver µg/L #11	Thallium µg/L #12	Zinc µg/L #13	Cyanide µg/L #14	Asb MF/l #15
5/02	0.3	1.9	<0.06	0.05	0.2	0.2		14	0.066	0.0039	2.4	0.5	<0.02	<0.03	33	0.9	
6/02	<0.2	1.5	<0.06	<0.03	<0.2	<0.2	<0.15	9.6	0.12	0.0045	2.3	1	<0.02	<0.03	29	<0.8	<1.1
7/02	0.5	1.8	<0.06	0.07	<0.2	<0.2	0.2	12	0.12	0.0055	2.4	0.9	<0.02	<0.03	24	<0.9	
8/02	0.6	2.0	<0.06	0.1	<0.2	<0.2	0.4	11	0.09	0.0026	2.1	0.8	<0.02	<0.03	26	<0.9	
9/02	<0.2	2	<0.06	<0.1	<0.2	<0.2	<0.15	14	<0.25	0.0040	2.2	<0.5	<0.1	<0.03	23	<0.9	
MEC, total (ug/L)	**0.6**	**2**	**<0.06**	**0.1**	**0.2**	**0.2**	**0.4**	**51**	**0.12**	**0.0055**	**2.4**	**1**	**<0.1**	**<0.03**	**33**	**0.9**	**<1.1**
MEC, Diss (ug/L)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Max Background, Tot	0.4	3	0.06	0.2	1.3	1.3	0.3	4.2	0.33	0.0041	3.4	0.5	<0.02	0.1	23	0.6	<0.2
Max Background, Diss	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CMC (µg/l) Freshwater Diss.@ 61mg/l Hardness		340 i,m,w		2.5 e,i,m,w,x		366 e,i,m,o	16 i,m,w	8.4 e,i,m,w,x	38 e,i,m		308 e,i,m,w	p	**1.5** e,i,m		**77** e,i,m,w,	22 o	
CMC (µg/l) Freshwater **Total** @ 61mg/l Hardness				2.6		1160		8.8	44		309	20	1.7		79		
CCC (µg/l) Freshwater) Diss.@61mg/l Hardness		150 i,m,w		1.6 e,i,m,w		**119** e,i,m,o	**11** i,m,w	**5.9** e,i,m,w	**1.5** e,i,m		**34** e,i,m,w				78 e,i,m,w	**5.2** o	
CCC (µg/l)Freshwater **Total** @ 61mg/l Hardness				1.7		138		6.1	1.7		34	**5**			79		
HHealth (µg/l) Water+Org	14 a,s		n	N		n	n	1300	n	0.050 a	610 a	n		**1.7** a,s		700 a	**7Mil** f/l k,s
HHealth (µg/l) Org Only	4300 a,t		n	N		n	n		n	0.051 a	4600 a	n		6.3 a,t		220,000 a,j	
Numeric Basin Plan Objective (µg/l) (MCL, site specific)	MCL **6**	Site Sp 10	MCL **4**		MCL **50**			Site Sp 10		303d **0**	MCL 100	MCL 50	Site Sp 10	MCL 2	Site Sp 100	Site Sp 10	MCL 7 Mil f/l
Narrative Basin Plan Objective (µg/l)		MCL **10**		MCL 5					AL 15								
Reasonable Potential	N	N	N	N	N	N	N	**Y**	N	**Y**	N	N	N	N	N	N	N

Notes: Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California, 40 CFR Part 131, FR/Vol. 65, No. 97/Thursday, May 18, 2000/Rules and Regulations I = Inconclusive ** 303d Listed Constituent, Sac-SJ Delta

DISCOVERY BAY EFFLUENT DATA, PRIORITY POLLUTANTS (CONTINUED)

Constituent CTR #	2, 3, 7, 8-TCDD (Dioxin) # 16	Acrolein # 17	Acrylonitrile # 18	Benzene # 19	Bromoform # 20	Carbon Tetrachloride # 21	Chlorobenzene # 22	Chlorodibromo-methane # 23	Chloroethane # 24	2-Chloro-ethylvinyl Ether # 25
May-Sep/02	N/A	<5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1
MEC, ug										
Background, ug/	N/A	<5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1
BP Obj (ug/L)				MCL 1			MCL 70			
CMC (ug/L)										
CCC (ug/L)										
HHealth (ug/L) Water +Org Onl	0.000000013 c	320 s	0.059 a,c,s	1.2 a,c	4.3 a,c	0.25 a,c,s	680 a,s	0.41 a,c		
HHealth (µg/l) Org Only	0.000000014 c	780 t	0.66 a,c,t	71 a,c	360 a,c	4.4 a,c,t	21,000 a,j,t	34 a,c		
Reasonable Potent	I	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

DISCOVERY BAY EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	Chloroform # 26	Dichloro-bromomethane # 27	1,1-Dichloro-ethane # 28	1,2-Dichloro-ethane # 29	1,1-Dichloro-ethylene # 30	1,2-Dichloro-propane # 31	1,3-Dichloro-propylene # 32	Ethyl benzene # 33	Methyl Bromide (Bromomethane) # 34	Methyl Chloride (Chloromethane # 35
May-Sep/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MEC, ug/L										
Background, ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BP Obj, (ug/L)	OEHHA 1.1		MCL 5	MCL 5			MCL 0.5	MCL 700		
CMC (ug/L)										
CCC (ug/L)										
HHealth (ug/L) Water +Org Only	Reserved	0.56 a,c		0.38 a,c,s	0.057 a,c,s	0.52 a	10 a,s	3,100 a,s	48 a	n
HHealth (µg/l) Org Only	Reserved	46 a,c		99 a,c,t	3.2 a,c,t	39 a	1,700 a,t	29,000 a,t	4,000 a	n
Reasonable Potential	N	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

DISCOVERY BAY EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	**Methylene Chloride (Dichloromethane) # 36**	**1,1,2,2-Tetra-chloroethane # 37**	**Tetrachloro-ethylene # 38**	**Toluene # 39**	**1,2-Trans-Dichloro ethylene # 40**	**1,1,1 - Trichloro-ethane # 41**	**1,1,2-Trichloro-ethane # 42**	**Trichloro-ethylene # 43**	**Vinyl Chloride # 44**	**2-Chloro-phenol # 45**
May-Sep/02	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
MEC, ug/L										
Background, ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
BP Obj, (ug/L)	MCL 5	MCL 1.0	MCL 5	MCL 150	MCL 10	MCL 200	MCL 5	MCL 5	MCL 0.5	
CMC (ug/L)										
CCC (ug/L)										
Hhealth (ug/L) Water +Org Only	4.7 a,c	0.17 a,c,s	0.8 c,s	6,800 a	700 a	n	0.60 a,c,s	2.7 c,s	2 c,s	120 a
Hhealth (µg/l) Org Only	1,600 a,c	11 a,c,t	8.85 c,t	200,000 a	140,000 a	n	42 a,c,t	81 c,t	525 c,t	400 a
Reasonable Potential	N	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

DISCOVERY BAY EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	**2, 4 Dichlorophenol # 46**	**2,4-Dimethyl – phenol # 47**	**2-Methyl 4,6-Di-nitrophenol # 48**	**2,4-Dinitrophenol # 49**	**2-Nitrophenol # 50**	**4-Nitro – phenol # 51**	**4-chloro-3-methyl- phenol # 52**	**Pentachloro - phenol # 53**	**Phenol # 54**
May-Sep/02	<1	<2	<5	<5	<5	<5	<1	<1	<1
MEC, ug/L									
Background, ug/L	<1	<2	<5	<5	<5	<5	<1	<1	<1
BP Obj, (ug/L)								MCL 1.0	
CMC (ug/L) Freshwater @ pH=6.5								4 f,w	
CCC (ug/L) Freshwater @ pH=6.5								5.3 f,w	
HHealth (ug/L) Water +Org Only	93 a,s	540 a	13.4 s	70 a,s				0.28 a,c	21,000 a
HHealth (µg/l) Org Only	790 a,t	2,300 a	765 t	14,000 a,t				8.2 a,c,j	4,600,000 a,j,t
Reasonable Potential	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

DISCOVERY BAY EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	**2, 4, 6 Trichloro-phenol # 55**	**Acenaphthene # 56**	**Acenaphthylene # 57**	**Anthracene # 58**	**Benzidine # 59**	**Benzo(a) anthracene # 60**	**Benzo(a) Pyrene # 61**	**Benzo(b) fluoranthene # 62**	**Benzo (ghi) perylene # 63**
May-Sep/02	<5	<0.3	<0.2	<0.3	<5	<0.3	<0.1	<0.3	<0.1
MEC, ug/L									
Background, ug/L	<5	<0.3	<0.2	<0.3	<5	<0.3	<0.1	<0.3	<0.1
BP Obj, (ug/L)	P65 5								
CMC (ug/L)									
CCC (ug/L)									
HHealth (ug/L) Water +Org Only	2.1 a,c	1,200 a		9,600 a	0.00012 a,c,s	0.0044 a,c	0.0044 a,c	0.0044 a,c	
HHealth (µg/l) Org Only	6.5 a,c	2,700 a		110,000 a	0.00054 a,c,t	0.049 a,c	0.049 a,c	0.049 a,c	
Reasonable Potential	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

DISCOVERY BAY EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	**Benzo(k) fluoranthene # 64**	**Bis (2-Chloro-ethoxy) Methane # 65**	**Bis (2-Chloro-ethyl) Ether # 66**	**Bis (2-Chloroiso-propyl) Ether # 67**	**Bis (2-Ethyl-hexyl) Phthalate # 68**	**4-Bromo-phenyl Phenyl Ether # 69**	**Butyl-benzyl Phthalate # 70**	**2-Chloro-naphthalene # 71**	**4-Chloro- phenyl Phenyl Ether # 72**
May-Sep/02	<0.3	<5	<1	<2	<3	<5	<5	<5	<5
MEC, ug/L									
Background, ug/L	<0.3	<5	<1	<2	<3	<5	<5	<5	<5
BP Obj, (ug/L)			P65 0.15		MCL 4				
CMC (ug/L)									
CCC (ug/L)									
HHealth (ug/L) Water +Org Only	0.0044 a,c		0.031 a,c,s	1,400 a	1.8 a,c,s		3,000 a	1,700 a	
HHealth (µg/l) Org Only	0.049 a,c		1.4 a,c,t	170,000 a,t	5.9 a,c,t		5,200 a	4,300 a	
Reasonable Potential	N	N	N	N	**N**	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

DISCOVERY BAY EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	Chrysene # 73	Dibenzo (ah) anthracene # 74	1,2 Dichloro-benzene # 75	1, 3 Dichloro-benzene # 76	1, 4 Dichloro-benzene # 77	3,3-Dichloro-benzidine # 78	Diethyl Phthalate # 79	Dimethyl Phthalate # 80	Di-n-Butyl Phthalate # 81
May-Sep/02	<0.3	<0.1	<0.5	<0.5	<0.5	<5	<2	<2	<5
MEC, ug/L									
Background, ug/L	<0.3	<0.1	<0.5	<0.5	<0.5	<5	<2	<2	<5
BP Obj, (ug/L)	P65 0.1	P65 0.1	MCL 600		MCL 5	P65 0.3			
CMC (ug/L)									
CCC (ug/L)									
HHealth (ug/L) Water +Org Only	0.0044 a,c	0.0044 a,c	2,700 a	400	400	0.04 a,c,s	23,000 a,s	313,000 s	2,700 a,s
HHealth (µg/l) Org Only	0.049 a,c	0.049 a,c	17,000 a	2,600	2,600	0.077 a,c,t	120,000 a,t	2,900,000 t	12,000 a,t
Reasonable Potential	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

DISCOVERY BAY EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	2,4-Dinitro – toluene # 82	2,6-Dinito-toluene # 83	Di-n-Octyl Phthalate # 84	1,2-Diphenyl – hydrazine # 85	Fluoranthene # 86	Fluorene # 87	Hexachloro-benzene # 88	Hexachloro – butadiene # 89	Hexachloro - cyclopentadiene # 90
6-9/02	<5	<5	<5	<1	<0.05	<0.1	<1	<1	<1
MEC, ug/L									
Background, ug/L	<5	<5	<5	<1	<0.05	<0.1	<1	<1	<1
BP Obj, (ug/L)	P65 1.0			P65 0.4			P65 0.2		MCL 50
CMC (ug/L)									
CCC (ug/L)									
HHealth (ug/L) Water +Org Only	0.11 c,s			0.040 a,c,s	300 a	1,300 a	0.00075 a,c	0.44 a,c,s	240 a,s
HHealth (µg/l) Org Only	9.1 c,t			0.54 a,c,t	370 a	14,000 a	0.00077 a,c	50 a,c,t	17,000 a,j,t
Reasonable Potential	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

DISCOVERY BAY EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	**Hexachloro – ethane # 91**	**Indeno (1,2,3-cd) pyrene # 92**	**Isophorone # 93**	**Naphthalene # 94**	**Nitrobenzene # 95**	**N-Nitrosodimethyl-Amine # 96**	**N-Nitrosodi-N-Propylamine # 97**	**N-Nitrosodiphenyl amine # 98**
May-Sep/02	<1	<0.05	<1	<0.2	<1	<5	<5	<1
MEC, ug/L								
Background, ug/L	<1	<0.05	<1	<0.2	<1	<5	<5	<1
BP Obj, (ug/L)	P65 10					P65 0.02	P65 0.05	P65 40
CMC (ug/L)								
CCC (ug/L)								
HHealth (ug/L) Water +Org Only	1.9 a,c,s	0.0044 a,c	8.4 c,s		17 a,s	0.00069 a,c,s	0.005 a	5.0 a,c,s
HHealth (µg/l) Org Only	8.9 a,c,t	0.049 a,c	600 c,t		1,900 a,j,t	8.1 a,c,t	1.4 a	16 a,c,t
Reasonable Potential	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

DISCOVERY BAY EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	**Phenanthrene # 99**	**Pyrene # 100**	**1,2,4-Trichloro-benzene # 101**	**Aldrin # 102**	**α-BHC # 103**	**β-BHC # 104**	**γ-BHC (Lindane) # 105**	**δ-BHC # 106**	**Chlordane # 107**	**4,4' DDT # 108**
May-Sep/02	<0.05	<0.05	<0.5	<0.005	<0.01	<0.005	<0.01	<0.005	<0.02	<0.01
MEC, ug/L										
Background, ug/L	<0.05	<0.05	<0.5	<0.005	<0.01	<0.005	<0.01	<0.005	<0.02	<0.01
BP Obj, (ug/L)			MCL 70	303d/OCPest <0.005	303d/OCPest <0.01	303d/OCPest <0.005	303d/OCPest <0.019	303d/OCPest <0.005	303d/OCPest <0.1	303d/OCPest <0.01
CMC (ug/L) freshwater (Saltwater)				3 g (1.3 g)			0.95 w (0.16 g)		2.4 g (0.09 g)	1.1 g (0.13 g)
CCC (ug/L) freshwater (Saltwater)									0.0043 g (0.004 g)	0.001 g (0.001 g)
HHealth (ug/L) Water +Org Only		960 a		0.00013 a,c	0.0039 a,c	0.014 a,c	0.019 c		0.00057 a,c	0.00059 a,c
HHealth (µg/l) Org Only		11,000 a		0.00014 a,c	0.013 a,c	0.046 a,c	0.063 c		0.00059 a,c	0.00059 a,c
Reasonable Potential	N	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

DISCOVERY BAY EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	4, 4'- DDE # 109	4,4'-DDD # 110	Dieldrin # 111	alpha-Endo-sulfan # 112	beta- Endo-sulfan # 113	Endosulfan Sulfate # 114	Endrin # 115	Endrin Aldehyde # 116	Heptachlor # 117	Heptachlor Epoxide # 118
4/26/01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
MEC, ug/L										
Background, ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BP Obj, (ug/L)	OCPest <0.05	OCPest <0.05	303d/OCPest <0.01	303d/OCPest <0.02	303d/OCPest <0.01	303d/OCPest <0.05	303d/OCPest <0.01	303d/OCPest <0.01	303d/OCPest <0.01	303d/OCPest <0.01
CMC (ug/L) freshwater (Saltwater)			0.24 w (0.71 g)	0.22 g (0.034 g)	0.22 g (0.034 g)		0.086 w (0.037 g)		0.52 g (0.053 g)	0.52 g (0.053 g)
CCC (ug/L) freshwater (Saltwater)			0.056 w (0.0019 g)	0.056 g (0.0087 g)	0.056 g (0.0087 g)		0.036 w (0.0023 g)		0.0038 g (0.0036 g)	0.0038 g (0.0036 g)
HHealth (ug/L) Water +Org Only	0.00059 a,c	0.00083 a,c	0.00014 a,c	110 a	110 a	110 a	0.76 a	0.76 a	0.00021 a,c	0.00010 a,c
HHealth (µg/l) Org Only	0.00059 a,c	0.00084 a,c	0.00014 a,c	240 a	240 a	240 a	0.81 a,j	0.81 a,j	0.00021 a,c	0.00011 a,c
Reasonable Potential	N	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

DISCOVERY BAY EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	PCBs # 119	PCBs # 120	PCBs # 121 -125	Toxaphene # 126
4/26/01	<0.1	<0.1	<0.1	<0.5
MEC, ug/L				
Background, ug/L	<0.1	<0.1	<0.1	<0.5
Basin Plan Objective (ug/L)	P65 0.045	P65 0.045	P65 0.045	303d/OCPest <0.5
CMC (ug/L) freshwater (Saltwater)				0.73 (0.21)
CCC (ug/L) freshwater (Saltwater)	0.014u (0.03 u)	0.014u (0.03 u)	0.014u (0.03 u)	0.0002 (0.0002)
HHealth (ug/L)Water +Org Only	0.00017c,v	0.00017c,v	0.00017c,v	0.00073a,c
HHealth (µg/l)Org Only	0.00017c,v	0.00017c,v	0.00017c,v	0.00075a,c
Reasonable Potential	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

ATTACHMENT C, CONT

SUMMARY DISCOVERY BAY EFFLUENT DATA AND CRITERIA, OTHER CONSTITUENTS

Constituent Date	Al µg/L	NH_3 mg/L	Ba µg/L	Bo µg/L	Co µg/L	Cl mg/L	F µg/L	Fe µg/L	Mn µg/L	Nitrate as N, mg/l	Sulfate mg/L	TDS mg/L	V µg/L
5/16/00						460	420			8.0	170	1300	
5/29/01, 11/7/01		1.2				370	430			10	170	1600	
5/29/02	100	0.6	45			380	600			8.2	160	1300	
6/19/02	90	0.8	43			390		<50	11	14	160	1300	
7/25/02	110	0.3	50			390	500	<50	7.8	7.2	170	1400	
8/28/02	50	0.4	39			380	800			16	160	1300	
9/18/02	110	0.6	42			370	600	<50	8.9	9.4	160	1200	
MEC, total (ug/L)	110	1.2	50			460	800	<50	11	16	170	1600	
MEC, Diss (ug/L)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Max Background, Tot	620	1.0	39			170	300	740	20	2.3	40	430	
Max Background, Diss	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Numeric Basin Plan Objective (µg/l) (MCL, site specific)	MCL **200**		Site Sp 100	Ag WQ Gold Boo **750**	Ag WQ Rome Paper **50**	Site Sp **250**	Ag WQ Rome Paper 1000	Site Sp **300**	Site Sp **50**	MCL **10**	2ry MCL **250/500**	Ag WQ Rome Paper **450**	AL 50
Narrative Basin Plan Objective (µg/l)	USEPA **87** CCC **750** CMC	USEPA 1.0 CCC 4.6 CMC											
Reasonable Potential	**N**	**Y**	N	I	I	**Y**	N	N	N	**Y**	N	**Y**	I

10 September 2001

REQUIREMENT TO SUBMIT MONITORING DATA

The Regional Water Quality Control Board (Board) is required to protect and enhance the beneficial uses of surface and ground waters in the Region. As part of that effort, National Pollutant Discharge Elimination System (NPDES) Permits are adopted which prescribe effluent limits for the types and concentrations of chemical and physical constituents which can be safely discharged. In order to prepare appropriate NPDES Permits, it is necessary to have adequate characterization of the discharged effluent and the receiving water.

The following is a requirement that you collect effluent and receiving water samples and have them analyzed for a variety of potential waste constituents. In most cases this monitoring will be in addition to monitoring required in your NPDES Permit. To the extent that there is overlap between this request and monitoring already being done under your Permit, the monitoring need not be duplicated. This requirement is brought on by a number of factors:

1. On 2 March 2000, the State Water Resources Control Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, also known as the State Implementation Policy (SIP). The SIP established methods of evaluating receiving water criteria and developing effluent limitation in NPDES Permits for the priority pollutants contained in the US Environmental Protection Agency's (USEPA) *California Toxics Rule* and portions of USEPA's *National Toxics Rule*. Section 1.2 of the SIP directs the Board to issue Water Code Section 13267 letters to all NPDES dischargers requiring submittal of data sufficient to (1) determine if priority pollutants require effluent limitations (Reasonable Potential Analysis) and (2) calculate water quality-based effluent limitations. Further, Section 2.4 of the SIP requires that each discharger submit to the Regional Boards reports necessary to determine compliance with effluent limitations for priority pollutants in permits. Sections 2.4.1 through 2.4.4 of the SIP provide minimum standards for analyses and reporting. (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from http://www.swrcb.ca.gov/iswp/final.pdf.) To implement the SIP, effluent and receiving water data are needed for all priority pollutants. Effluent and receiving water pH and hardness are required to evaluate the toxicity of certain priority pollutants (such a heavy metals) where the toxicity of the constituents varies with pH and/or hardness. Section 3 of the SIP prescribes mandatory monitoring of dioxin congeners.

2. In addition to the specific requirements of the SIP, the Board is requiring the following monitoring needed for permit development:

    a. Organophosphorous pesticides, principally diazinon and chlorpyrifos, are commonly-used insecticides found in many domestic wastewater discharges at concentrations which can cause toxicity both in effluent and in receiving water. These pesticides are not "priority pollutants" and so are not part of the analytical methods routinely performed for

NPDES discharges. **This monitoring is required of domestic wastewater dischargers only.**

b. Drinking water constituents. Constituents for which drinking water Maximum Contaminant Levels (MCLs) have been prescribed in the California Code of Regulation are included in the *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (Basin Plan). The Basin Plan defines virtually all surface waters within the Central Valley Region as having existing or potential beneficial uses for municipal and domestic supply. The Basin Plan further requires that, at a minimum, water designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs contained in the California Code of Regulations.

c. Effluent and receiving water temperature. This is both a concern for application of certain temperature sensitive constituents, such as fluoride, and for compliance with the Basin Plan's thermal discharge requirements.

d. Effluent and receiving water hardness and pH. These are necessary because several of the CTR constituents are hardness or pH dependent.

e. Receiving water flow is needed to determine possible dilution available in the receiving water. The receiving water flows, in combination with the receiving water pollutant concentrations, will be used to determine if there is assimilative capacity in the receiving water for each pollutant, and whether dilution credits can be granted. Dilution credits can increase the concentrations of pollutants allowed in your effluent discharge if assimilative capacity is available in the receiving water.

Pursuant to Section 13267 of the California Water Code, you are required to submit monitoring data for your effluent and receiving water as described in Attachments I through IV.

Attachment I – Sampling frequency and number of samples.

Attachment II – Constituents to be monitored. This list identifies the constituents to be monitored. It is organized into groupings (Volatile Organics, Semi-Volatile Organics, Inorganics, Pesticides/Polychlorinated Biphenyls (PCBs), Other Constituents, and Discharge & Receiving Water Flows), which correspond to groupings in Attachment I. Also listed are the Controlling Water Quality Criteria and their concentrations. The criteria concentrations are compiled in the Central Valley Regional Water Board's staff report, *A Compilation of Water Quality Goals.*[1] Minimum quantitation levels for the analysis of the listed constituents will be equal to or less than the Minimum Levels (ML) listed in Appendix 4 of the SIP or the Detection Limits for Reporting Purposes (DLRs) published by the Department of Health Services which are below the controlling water quality criteria concentrations listed in Attachment II of this letter. In cases where the controlling water quality criteria concentrations are below the detection limits of all approved analytical methods, the best available procedure will be utilized that meets the lowest of the MLs and DLR. Also listed are suggested analytical procedures. You are not required to use these specific procedures as

long as the procedure you select achieves the desired minimum detection level. All analyses must be performed by a California certified environmental analytical laboratory.

Attachment III – Dioxin and furan sampling. Section 3 of the SIP has specific requirements for the collection of samples for analysis of dioxin and furan congeners, which are detailed in Attachment III. Briefly, dischargers classified as major must collect and analyze two samples per year (one collected in the wet season and one collected in the dry season) for congeners in each of the next three years. For dischargers classified as minor, one wet season and one dry season sample must be collected and analyzed at some time during the next three years.

Attachment IV – Reporting Requirements. This attachment provides laboratory and reporting requirements including a recommended data reporting format.

With the exception of dioxin and furan congener sampling which is due by **1 November 2004** (see Attachment III), all samples shall be collected, analyses completed, and monitoring data shall be submitted to the Regional Board by **1 March 2003**. Any NPDES permit application submitted after **1 March 2002** shall include with the application at least one set of data for the constituents listed in Attachment II.

In the interest of generating and submitting data by the required dates, a schedule for compliance with this data request shall be prepared and submitted to the Executive Officer by **16 November 2001**. This schedule shall include the requirements of Attachment I and Attachment III. The schedule will also include the data submission requirements for applications submitted after **1 March 2002**.

Failure or refusal to submit technical or monitoring data as required by Section 13267, California Water Code, or falsifying any information provided is guilty of a misdemeanor and is subject to an administrative civil liability of up to $1,000 per day of violation, in accordance with Section 13268, California Water Code.[1]

If you have any questions, please contact your Regional Board staff representative.

GARY M. CARLTON
Executive Officer

Attachments (4)

[1] Available on the internet at http://www.swrcb.ca.gov/rwqcb5/wq_goals.

Attachment I – Sampling Frequency and Number of Samples (Major Municipal)

Samples shall be collected from the effluent and upstream receiving water and analyzed for the constituents listed in Attachment II to provide the indicated number of valid sample results by the submittal due date. Sampling frequency shall be adjusted so that the appropriate number of samples is collected by the due date and so that the sampling is representative of the wastewater discharge.

Constituent/Sample /Type[1]	Frequency	Timeframe (years)	Total Number of Samples
Volatile Organics/grab	Monthly	1	12
Semi-Volatile Organics/grab or composite	Quarterly	1	4
Inorganics/grab or composite	Monthly	1	12
Pesticides & PCBs/grab or composite	Quarterly	1	4
Other Constituents[2]/grab or composite	Monthly	1	12
Discharge & Receiving Water Flow[3]	Weekly (plus when year 2 & 3 dioxin samples are taken)	1 (2)	52 (4)
Dioxins/grab or composite	Semi-annual	3	6

[1] The effluent sampling station and the upstream receiving water station specified in the NPDES Permit Monitoring and Reporting Program should be used.

[2] See list in Attachment II.

[3] Discharge and Receiving Water Flow. Discharge flow should be recorded and reported for each day of sample collection. All NPDES dischargers should have a means of measuring the volume of discharge as part of their monitoring already required by the NPDES Permit Monitoring and Reporting Program. Receiving Water Flow, however, is not generally required by NPDES Permit Monitoring Programs. For facilities that already conduct receiving water flow monitoring, the receiving water flow should be recorded and reported for each day in which sampling occurs. For facilities that do not routinely conduct receiving water flow monitoring, provide the best estimate of flow reasonably obtainable. It may be possible to obtain flow data from an existing nearby gauging station.

Attachment III -Dioxin and Furan Sampling

Section 3 of the State Implementation Plan requires that each NPDES discharger conduct sampling and analysis of dioxin and dibenzofuran congeners. The required number and frequency of sampling are as follows:

- Major NPDES Dischargers – once during dry weather and once during wet weather for each of three years, for a total of six samples.
- **Minor NPDES Dischargers** – once during dry weather and once during wet weather for one year during the three-year period, for a total of two samples.

Each sample shall be analyzed for the seventeen congeners listed in the table below. High Resolution GCMS Method 8290, or another method capable of individually quantifying the congeners to an equivalent detection level, shall be used for the analyses.

Sampling shall start during winter 2001/2002 and all analyses shall be completed and submitted by 1 November 2004. Sample results shall be submitted along with routine monitoring reports as soon as the laboratory results are available.

For each sample the discharger shall report:

- The measured or estimated concentration of each of the seventeen congeners
- The quantifiable limit of the test (as determined by procedures in Section 2.4.3, No. 5 of the SIP)
- The Method Detection Level (MDL) for the test
- The TCDD equivalent concentration for each analysis calculated by multiplying the concentration of each congener by the Toxicity Equivalency Factor (TEF) in the following table, and summing the resultant products to determine the equivalent toxicity of the sample expressed as 2,3,7,8-TCDD.

Congener	TEF
2,3,7,8TetraCDD	1
1,2,3,7,8-PentaCDD	1.0
1,2,3,4,7,8-HexaCDD	0.1
1,2,3,6,7,8-HexaCDD	0.1
1,2,3,7,8,9-HexaCDD	0.1
1,2,3,4,6,7,8-HeptaCDD	0.01
OctaCDD	0.0001
2,3,7,8-TetraCDF	0.1
1,2,3,7,8-PentaCDF	0.05
2,3,4,7,8-PentaCDF	0.5
1,2,3,4,7,8-HexaCDF	0.1
1,2,3,6,7,8-HexaCDF	0.1
1,2,3,7,8,9-HexaCDF	0.1
2,3,4,6,7,8-HexaCDF	0.1
1,2,3,4,6,7,8-HeptaCDF	0.01
1,2,3,4,7,8,9-HeptaCDF	0.01
OctaCDF	0.0001

Attachment IV – Reporting Requirements

1. **Laboratory Requirements**. The laboratory analyzing the monitoring samples shall be certified by the Department of Health Services in accordance with the provisions of Water Code Section 13176 and must include quality assurance/quality control data with their reports.

2. **Criterion Quantitation Limit (CQL)**. The criterion quantitation limits will be equal to or lower than the minimum levels (MLs) in Appendix 4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from http://www.swrcb.ca.gov/iswp/final.pdf) or the detection limits for purposes of reporting (DLRs) published by the Department of Health Services (http://www.dhs.ca.gov/ps/ddwem/chemicals/DLR/dlrindex.htm) which is below the controlling water quality criterion concentrations summarized in attachment II of this letter.

3. **Method Detection Limit (MDL)**. The method detection limit for the laboratory shall be determined by the procedure found in 40 Code of Federal Regulations (CFR) Part 136, Appendix B (revised as of May 14, 1999).

4. **Reporting Limit (RL).** The reporting limit for the laboratory. This is the lowest quantifiable concentration that the laboratory can determine. Ideally, the RL should be equal to or lower than the CQL to meet the purposes of this monitoring.

5. **Reporting Protocols**. The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:

   a. Sample results greater than or equal to the reported RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
   b. Sample results less than the report RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.
   c. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory, if such information is available, may include numerical estimates of the data quantity for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.
   d. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.

6. **Data Format**. The monitoring report shall contain the following information for each pollutant:

   a. The name of the constituent.
   b. Sampling location.
   c. The date the sample was collected.
   d. The time the sample was collected.
   e. The date the sample was analyzed. For organic analyses, the extraction date will also be indicated to assure that hold times are not exceeded for prepared samples.

f. The analytical method utilized.
g. The measured or estimated concentration.
h. The required Criterion Quantitation Limit (CQL).
i. The laboratory's current Method Detection Limit (MDL), as determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).
j. The laboratory's lowest reporting limit (RL).
k. Any additional comments.

6. **Example of Data Format**.

Discharger:_____ Name of Laboratory:_____
Contact Name:_____ Laboratory Contact:_____
Phone Number:_____ Phone Number:_____

Name of Constituent and CTR #	Sampling Location *	Date Sample Collected	Time Sample Collected	Date Sample Analyzed	USEPA Method Used	Analytical Results (ug/L)	CQL (ug/L)	MDL (ug/L)	RL (ug/L)
(See Attach II)									

*The effluent sampling station and the upstream receiving water station specified in the NPDES Permit Monitoring and Reporting Program should be used. Other sampling locations must be approved by Regional Board staff. Include longitude and latitude coordinates for the receiving water sampling stations.

ATTACHMENT E

Town of Discovery Bay WWTP Effluent limit for Copper using CTR Water Quality Hardness-Dependent Values of the CCC (Chronic Criterion) and CMC (Acute Criterion) for the Protection of Freshwater Aquatic Life

Copper expressed as total recoverable, µg/l						
Hardness (mg/l as $CaCO_3$)	CCC[1] 4-Day Avg (µg/l)	CMC[2] 1-hr Avg (µg/l)	LTA[3] (chronic) (µg/l)	LTA[4] (acute) (µg/l)	AMEL[5] (µg/l)[5]	MDEL[6] (µg/l)
<25	Must calculate	Must calculate	Must calculate	Must calculate	Must calculate	
25	2.9	3.8	1.7	1.4	2.1	3.8
43	4.5	6.3	7.5	10.3	10.9	20.1
50	5.2	7.3	16.9	14.2	21	38
61	**6.1**	**8.8**	**31.4**	**20.4**	**30**	**55**
75	7.3	10.7	49.2	28.1	41	75
100	9.3	14.0	79.9	41.8	61	112
110	10.1	15.3	91.9	47.2	68	126
117	10.7	16.2	100.2	50.9	74	136
120	10.9	16.6	103.7	52.5	76	141
130	11.7	17.9	115.3	57.9	84	155
135	12.1	18.6	121.1	60.5	88	162
140	12.4	19.2	126.9	63.2	92	165
150	13.2	20.5	138.3	68.5	99	165
160	13.9	21.8	149.6	73.8	107	165
170	14.7	23.1	160.8	79.0	115	165
180	15.4	24.4	171.9	84.3	122	165
190	16.1	25.6	182.9	89.5	130	165
200	16.9	26.9	193.8	94.7	137	165
210	17.6	28.2	204.6	99.9	145	165
220	18.3	29.4	215.4	105.1	152	165
240	19.7	31.9	236.8	115.4	167	165
246	20.1	32.7	243.1	118.5	172	165
250	20.4	33.2	247.3	120.5	175	165
270	21.8	35.7	268.3	130.8	190	165
280	22.5	36.9	278.7	135.9	197	165
700	49.2	87.6	682.2	343.6	498	165

The effluent limit has been calculated per established procedures described in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP), and a CV = 0.5:

[1]CCC (4-day average) = e{0.8545[ln(hardness)] – 1.702}
[2]CMC (1-hr average) = e{0.9422[ln(hardness)] – 1.700}
[3]LTA_c (Long-Term Average chronic with **dilution**) = 0.581 x {CCC + **25** (CCC-4.2)
[4]LTA_a (Long-Term Average acute with **dilution**) = 0.373 x (CMC + **10** (CMC-4.2)
[5]AMEL (Average monthly effluent limitation) = LTA (lowest) x 1.45
[6]MDEL (Maximum Daily effluent limitation) = LTA (lowest) x 2.68

ATTACHMENT F

AMBIENT WATER QUALITY CRITERIA FOR AMMONIA

Total Ammonia

Temperature and pH-Dependent Values of the CCC (Chronic Criterion)

For Fish Early Stages Present

Continuous Concentration Criteria for Fish Early Life Stages Present, 30-day Avg (mg N/l)										
pH	**Temperature, °C**									
	0	**14**	**16**	**18**	**20**	**22**	**24**	**26**	**28**	**30**
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.8	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	2.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	**1.00**	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

***** Criteria Continuous Concentration

NOTE: Chronic Criterion includes a restriction that the highest 4-day average within the 30-day averaging period cannot be greater than twice the Chronic Criterion.

ATTACHMENT G

AMBIENT WATER QUALITY CRITERIA RECOMMENDED TO PROTECT FRESHWATER AQUATIC LIFE

TOTAL AMMONIA NITROGEN

pH-Dependent Values of the CMC (Acute Criterion)

Maximum Concentration Criteria 1-hr Avg (mg N/l)*		
pH	**Salmonids Present**	**Salmonids Absent**
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.0	42.0
6.9	26.2	39.2
7.0	24.1	36.1
7.1	21.9	32.9
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.3	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.64	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.41
8.1	**4.64**	6.95
8.2	3.83	5.73
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

* Criteria Maximum Concentration (CMC) with Salmonids Present

$$CMC = \frac{0.275}{1 + 10^{(7.204 - pH)}} + \frac{39.0}{1 + 10^{(pH - 7.204)}}$$

INFORMATION SHEET

TOWN OF DISCOVERY BAY AND ECO RESOURCES, INC.
DISCOVERY BAY WASTEWATER TREATMENT PLANT
CONTRA COSTA COUNTY

Status of Permit

On 11 June 1999, Order No. 99-096 was adopted by the Regional Board for the Discovery Bay Community Services District (Town of Discovery Bay's former name) and Eco Resources, Inc Wastewater Treatment Plant to discharge waste under the National Pollutant Discharge Elimination System (NPDES) to a Reclamation District No. 800 drainage ditch that 2 miles downstream gets pumped into Old River. Under Order No. 99-096, the treatment plant was permitted to discharge 1.3 million gallons per day (mgd) average dry weather flow (ADWF) of wastewater with a future expansion to 2.1 mgd (ADWF) upon construction of an additional treatment facility. Order No. 99-096 also established new effluent limitations for copper, which the Town of Discovery Bay could not comply and therefore, Cease and Desist Order (CDO) No. 99-097 was also adopted by the Regional Board on 11 June 1999, which included a time schedule to come into full compliance with the copper limitations by 1 September 2002. The Town of Discovery Bay was required to submit a corrective action plan and implementation schedule by 1 December 1999. The Town of Discovery Bay has been evaluating alternatives to come into compliance including source identification, advanced treatment for copper, changing water supplies, and relocation of the discharge point to a location which would provide a mixing zone for copper. The Town of Discovery Bay selected for changing their discharge point directly into Old River which would provide assimilative capacity for copper and bring them into compliance with their CDO and permit. Thus, on 24 December 2002, the Town of Discovery Bay and ECO Resources, Inc. submitted a Report of Waste Discharge, and applied for a revision of their NPDES permit and CDO to allow direct discharge to Old River and discontinue discharge to the Reclamation District No. 800 drainage ditch by June 2004. The revision to the permit will address the change in discharge location and establish new effluent limitations for CTR and other constituents effective upon completion of direct discharge into Old River. Additional information to complete filing of the application included a Diffuser Design and Zone of Initial dilution (ZID) report, a pollution prevention plan, and a new compliance schedule, all submitted on 26 July 2002. Based on Regional Board's comments, a revised Diffuser Design and ZID report was submitted on 24 December 2002. A dilution and assimilative capacity analyses in Old River with regards to copper and salinity (7 August 2002) and the priority pollutants analyses data (22 October and 11 November 2002).

Facility Description

The Town of Discovery Bay (Discovery Bay) owns a wastewater collection, treatment, and disposal system, and provides sewerage service to the community of Discovery Bay. The treatment facility is operated by ECO Resources, Inc. under contract with Discovery Bay. Discovery Bay and ECO Resources, Inc., are hereafter jointly referred to as Discharger. Plans for an additional 2,000+ dwelling development, Discovery Bay West, have been approved within the service area, necessitating an expansion of the wastewater treatment and disposal system. Thus the reason for the Discharger to construct additional treatment units in order to accommodate growth and increase the design capacity to 2.1 mgd. The existing treatment facility provides secondary level treatment and consists of bar screens, a comminutor, an oxidation ditch, secondary clarifiers and an ultraviolet (UV) disinfection system. The oxidation basin is operated to nitrify and denitrify, reducing both the

ammonia and nitrate concentrations in the wastewater. Sludge is stored in a facultative lagoon and periodically dewatered and disposed of at an appropriate disposal facility (see **Attachment B**).

The treatment plant expansion consists of an oxidation ditch, clarifier, UV system and two sludge lagoons (see **Attachment B**). New sludge lagoons will be constructed with two feet of clay lining material so that wastewater percolation into groundwater will be is $1x10^{-6}$ cm/sec or less. Upon completion of the plant expansion, estimated to be early 2003, the Discharger will cease to use discharge point 002, continue using discharge point 001 to Old River and begin to use discharge point 003 to the Reclamation District No. 800 drainage ditch. However, in order to come into compliance with effluent limitations for copper, the discharger has proposed to construct a new outfall with a diffuser with a completion date by June 2004 for direct discharge to Old River at the same location as discharge point 001 (New discharge point 001A). Upon completion of the direct discharge to Old River, discharge point 003 will no longer be used.

Description of Discharge

The existing treatment plant located on the North side of Highway 4 is in Section 36, T1N, R3E, MDB&M, while the new added treatment plant, will be located on the South side of Highway 4, in Section 31, T1N, R4E, MDB&M, as shown on **Attachment A**, a part of this Order. Treated municipal wastewater is discharged to Reclamation District No. 800's drainage ditch at the points, latitude 37°53'39" North and longitude 121°35'7" West (Discharge Point 002), latitude 37°53'18" North and longitude 121°35'7" West (Discharge Point 003). Water from the reclamation ditch is then pumped to Old River (Discharge Point 001). The pumped drainage to Old River is through a side bank pipe extending through the levee at a point Latitude 37°53'8" North, Longitude 121°34'30" West. Both are waters of the United States and are within the legal boundaries of the Sacramento-San Joaquin River Delta. The existing plant serves a population of 9500 in the community of Discovery Bay. The Report of Waste Discharge describes the current discharge as follows:

Monthly Average (dry weather) Flow	1.1 million gallons per day (mgd)
Design Flow (existing dry weather):	1.3 mgd
Design Flow (dry weather expansion):	2.1 mgd
Average Temperature	75 °F (summer), 65 °F (winter)
Highest Temperature	79 °F (summer), 70 °F (winter)
pH ranges	(7.0 – 8.1)

Constituent	Concentration[1]
BOD	(<3-44) mg/l
TSS	(<5-13) mg/l
Dissolved Oxygen	(6.8-9.0) mg/l
TDS	(1200-1400) mg/l
Electrical Conductivity @ 25°C	(1900–2300) µmhos/cm
Hardness as $CaCO_3$	(190-290) mg/l
Ammonia (as N)	(0.1-1.2) mg/l
Sulfate (as SO_4)	(110-170) mg/l

Constituent	Concentration[1]

Nitrate as N	(7.2-14)[2] mg/l
Aluminum	(90-110)[2] µg/l
Barium	(42-50)[2] µg/l
Chloride	(310-390) mg/l
Fluoride	(0.43-0.6) mg/l
Iron	<50[2] µg/l
Manganese	(7.8-11)[2] µg/l
Antimony	<0.2[2] µg/l
Arsenic	(1.5-2.0)[2] µg/l
Beryllium	<0.06[2] µg/l
Cadmium	<0.03[2] µg/l
Copper	(5.4-51)[1] µg/l
Lead	<0.25[2] µg/l
Mercury	(0.0039-0.0055)[2] µg/l
Nickel	(2.2-2.4)[2] µg/l
Selenium	(<0.5-1.0)[2] µg/l
Silver	<0.02[2] µg/l
Thallium	<0.03[2] µg/l
Zinc	(23-29)[2] µg/l
Cyanide	<0.9[2] µg/l

[1] Range from 2000-2002 data.
[2] Results from 2002 data only.

Receiving Water

Reclamation District No 800 drainage ditch and Old River

The Discharger currently discharges to a Reclamation District No. 800 drainage ditch which about 2 miles downstream gets pumped to Old River. Both the Reclamation District No. 800 ditch and this section of Old River are within the boundaries of the Sacramento-San Joaquin River Delta (hereafter Delta), in the southern portion of the Delta. Old River in the vicinity of the discharge point is influenced by both natural tidal cycles, and by Delta water exports via the state and federal projects, and the local water project (Contra Costa Water District intake). These water project export water out of the southern Delta to the East Bay, and to the southern regions of the state. The state water project (SWP) Clifton Court Forebay and Harvey Banks Pumping Plant operated by the California Department of Water Resources (DWR), and the Central Valley Project (CVP) Tracy Pumping Plant operated by the United States Bureau of Reclamation are located approximately 10 miles downstream of the point of discharge in Old River. In addition, the hydrology of Old River in the vicinity of the discharge point is also influenced by the operation of four temporary barriers (three tidal gates and one flow barrier) which impact water circulation in the South Delta.

Beneficial Uses

The Regional Board adopted a Water Quality Control Plan; Fourth Edition, for the Sacramento River and San Joaquin River Basins (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin. The requirements in this Order implement the Basin Plan. The Basin Plan at page II-1.00 states that: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning*".

The beneficial uses of the Sacramento–San Joaquin River Delta (which includes the Reclamation District No. 800 drainage ditch and Old River at the point of discharge), as defined in the Basin Plan, include: municipal and domestic water supply (MUN), irrigation and stock watering (AGR), industry process (PRO) and service supply (IND), contact (REC-1) and non-contact (REC-2) water recreation, freshwater habitat for both warm (WARM) and cold water species (COLD), serves as migration (MIGR) waters for three warm water species (striped bass, sturgeon, and shad) and two cold freshwater species (salmon and steelhead), allows for spawning of three warm water species (striped bass, sturgeon, and shad) (SPWN), serves as wildlife habitat (WILD), and allows for navigation (NAV).

Dissolved Oxygen

The Basin Plan at page III-5.00 states that "*Within the legal boundaries of the Delta, the dissolved oxygen concentration shall not be reduced below: 7.0 mg/l in the Sacramento River (below the I Street Bridge) and in all Delta waters west of the Antioch Bridge; ……; and 5.0 mg/l in all other Delta Waters except for those bodies of water which are constructed for special purposes and from which fish have been excluded or where the fishery is not important as a beneficial use".* Since the Discharger's effluent enters Old River at a location within the South Delta, then this Order applies a 5.0 mg/l as the receiving water limit for DO in the Old River.

Temperature

Thermal water quality objectives for the Delta (which includes Old River and Reclamation District No. 800 drainage ditch) are outlined in the *Water Quality Control Plan for Control of Temperature in Coastal Interstate Waters and Enclosed Bays and Estuaries of California* (Thermal Plan), last amended by the State Water Resources Control Board (State Board) on 18 September 1975. Based on the water body definitions in the plan, these receiving waters near the discharge point are included as an estuary (waters extending from a bay or the open ocean to the upstream limit of tidal action). For Estuaries, the Thermal Plan provides:

"5. <u>Estuaries</u>
A. Existing discharges
(1) Elevated temperature waste discharges shall comply with the following:

a. The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F.
b. Elevated temperature waste discharges either individually or combined with other discharges shall not create a zone, defined by water temperatures of more than 1°F above natural receiving

water temperature, which exceeds 25 percent of the cross-sectional area of a main river channel at any point.

c. No discharge shall cause a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place.

d. Additional limitations shall be imposed when necessary to assure protection of beneficial uses.

(2) Thermal waste discharges shall comply with the provisions of 5A (1) above and, in addition, the maximum temperature of thermal waste discharges shall not exceed 86°F."

Receiving water limitations have been established in this permit in compliance with the Thermal Plan.

Zone of Initial Dilution and Assimilative Capacity Analysis

Since the Discharger opted for discharging directly into Old River in order to come into compliance with the effluent limitations for copper, a Zone of Initial Dilution (ZID) analysis report was submitted on 26 July 2002 followed by an assimilative capacity analysis (ACA) report submitted on 7 August 2002. Because of additional data not incorporated in the initial ZID analysis, a revised ZID and diffuser design report was submitted on 24 August 2002. The ACA report used Old River flow data near Discovery Bay obtained from DWR for 1999, 2000, and 2001 (the most recent available), and indicated that Old River does have assimilative capacity with regards to copper and salinity. The report evaluated the last three years of effluent and Old River data at monitoring stations R1 and R2, and background data from the Harvey Banks pumping plant. The ACA report indicated that there are several factors which cause data at R1 and R2 questionable in terms of their representativeness of ambient background conditions: 1) the R1 and R2 samples are collected at the shoreline where any effluent influences (and agricultural drainage influences) may be maximized considering the near-shore discharge of the Reclamation District No. 800 pump station, 2) shoreline conditions are somewhat hydraulically isolated from bulk river flow hindering the mixing of the Reclamation District No. 800 pump station discharge into the bulk river flow, 3) Old River undergoes flow reversals such that at times R1 and R2 are hydraulically "downstream" and "upstream", respectively, from the effluent discharge point, and 4) considering the 36 million gallon storage volume potential of the Reclamation District No. 800 drainage canal system, the discharge of effluent and agricultural drainage from that system is not continuous, i.e., it occurs in batches of varying frequency and duration. The ZID report modeled a range of combinations of discharge and receiving water conditions, including high and low river currents, high and low tides, and high and low effluent and receiving water densities. The ZID report also included a diffuser design discussion, recommending using a multiport diffuser fitted with extra ports that can initially be blocked (with Tideflex, duck-billed valves) and then unblocked in the future when needed. Since the diffuser valves are able to maintain adequate velocities at low flows, the number and size of the diffuser ports were designed to accommodate the highest ultimate future daily high peaked flow of 6.1 mgd. Based on this flow, and effluent and receiving water conditions, and to comply with water quality requirements, the preferred diffuser design will be located at the bottom of the river, will

consist of a length of 105 feet, will have 36 ports with 2-inch diameters, and will have a port spacing of 3 feet on-center. The ZID report using the Visual Plumes model, an EPA-approved model, predicts that under worst scenarios, (when effluent discharge is 6.17 mgd and river velocity is zero and assuming a river depth of 15 feet), the discharge will achieve a dilution of 10: 1 within a defined mixing zone of 105 feet wide, 6 feet deep (9 feet from river surface), and 2 (1.8 on table below) feet in longitudinal diameter, and a dilution of 25:1 or greater within a defined mixing zone of 105 feet wide, 13.5 feet deep (1.5 feet from river surface), and 5 (4.7 on table below) feet in longitudinal diameter. These mixing zones correspond to a river size of 150 feet at the bottom and 400 feet at the surface from bank to bank, and an actual minimum river depth of 15 feet during critical low flows and low tidal conditions. The following table shows a correlation of receiving water conditions, and the size of the mixing zone to achieve dilutions of 10:1 and 25:1.

Seasonal Temperature Condition	River Velocity (fps)	Effluent Flow Rate (MGD)	Dilution 10:1 1-hr Acute Criterion		Dilution 25:1 4-day Chronic Criterion	
			Depth (feet)	Diameter (feet)	Depth (feet)	Diameter (feet)
Winter	0.0	0.39	9.3	1.5	5.0	2.6
		0.57	9.2	1.6	4.4	3.0
		2.94	9.0	1.8	1.7	4.5
		4.32	9.0	1.8	1.5	4.6
		6.17	**9.0**	**1.8**	**1.5**	**4.7**
	1.0	0.39	12.8	0.5	12.6	0.7
		0.57	12.7	0.6	12.5	0.9
		2.94	11.9	1.2	11.3	2.0
		4.32	11.5	1.4	10.8	2.4
		6.17	11.0	1.6	10.0	2.8
Summer	0.0	0.39	9.2	1.5	4.8	2.7
		0.57	9.1	1.6	4.2	3.1
		2.94	9.0	1.8	1.6	4.5
		4.32	9.0	1.8	1.5	4.6
		6.17	9.0	1.8	1.4	4.7
	1.0	0.39	12.8	0.5	12.6	0.7
		0.57	12.7	0.6	12.5	0.9
		2.94	11.9	1.2	11.3	2.0
		4.32	11.5	1.4	10.8	2.4
		6.17	11.0	1.6	10.0	2.8

There are only a few constituents for which dilution is needed. These include, salinity (chloride, TDS, and electric conductivity), nitrate, and copper. With respect to copper acute toxicity is allowed with a minimum dilution of 10 to 1 while chronic toxicity is allowed with a minimum dilution of 25 to 1. For all other constituents a minimum dilution of 10:1 is applied except for EC where a minimum dilution of 25:1 is needed and for chloride where a dilution of 5:1 is more applicable to not allow any acute toxicity. Allowances of Dilution ratios vary in the Order to minimize the use of natural assimilative capacity of the river. In addition, this permit contains a provision that requires

the Discharger to conduct a receiving water study and conduct ongoing monitoring to confirm that Old River has and will maintain assimilative capacity for these constituents. The Order allows the Regional Board to reopen the permit and incorporate findings and limitations into the Order as appropriate if conditions are not consistent with the assumptions used in the model.

Three Species Chronic Toxicity

The Discharger has been monitoring on a quarterly basis for chronic toxicity of the effluent in accordance with the procedure outlined in EPA 600/4-91/002 (*Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Water to Freshwater Organisms*) and EPA 505/2-90-001 (*Technical Support Document for Water Quality Based on Toxic Control*). In March 1998, the tests indicated that the effluent sample was not toxic with respect to algal growth, fathead minnow growth, or *Ceriodaphnia* survival. However, there was a statistically significant reduction in Ceriodaphnia reproduction at 100% effluent, yielding a TU of 1.3. In addition, in December 2000, the tests this time indicated there was a significant reduction in both survival and reproduction of Ceriodaphnia and algal growth, and in June 2001, both survival and reproduction of Ceriodaphnia were significantly reduced. For the year 2002, in February Ceriodaphnia reproduction was significantly reduced, in May both survival and reproduction of Ceriodaphnia were again significantly reduced, and in August, growth of fathead minnows was significantly reduced. USEPA has recently published newly promulgated Toxicity test methods with an effective date of 19 December 2002. Therefore, the three species chronic toxicity test will be conducted using the USEPA October 2002 Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition EPA/821-R-02-013 using the species *Ceriodaphnia dubia*, *Pimephales promelas*, and *Selenastrum capricornutum*. This permit contains a provision that requires the Discharger to perform a study on the effluent to determine if it is chronically toxic through a Toxicity Identification Evaluation (TIE) and to submit a workplan to conduct a Toxicity Reduction Evaluation (TRE) and eliminate the cause of the toxicity.

Permit Effluent Limitations

Clean Water Act Section 301 (b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include Regional Board Basin Plan beneficial uses and narrative and numeric water quality objectives, State Board-adopted standards, and federal standards, including the CTR and NTR. The Basin Plan contains many numeric water quality objectives and contains a narrative toxicity objective that states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." (Basin Plan at III-8.00.) For determining whether there is reasonable potential for an excursion above a narrative objective, the regulations prescribe three discrete methods (40 CFR 122.44 (d)(vi)). The Regional Board often relies on the second method because the USEPA's water quality criteria have been developed using methodologies that are subject to public review, as are the individual recommended criteria guidance documents. USEPA's ambient water quality criteria are used as means of supplementing the integrated approach to toxics control, and in some cases deriving numeric limitations to protect receiving waters from toxicity as required in the Basin Plan's narrative toxicity objective. In addition, when determining effluent limitations for a discharger, the dilution of the effluent in the receiving water may be considered where areas of dilution are defined. However, when a

receiving water is impaired by a particular pollutant or stressor, limited or no pollutant assimilative capacity may be available in spite of the available dilution. In these instances, and depending upon the nature of the pollutant, effluent limitations may be set equal to or less than the applicable water quality criteria which are applied at the point of discharge such that the discharge will not cause or contribute to the receiving stream exceedance of water quality standards established to protect the beneficial uses.

Section 1.3 of the SIP requires the Regional Board to follow specific procedures for each priority pollutant with an applicable criterion or objective to determine if a water quality based effluent limitation is required. In evaluating compliance with the CTR and SIP for this new Order, Regional Board staff utilized ambient surface water quality data submitted by the Discharger from monitoring station R1 and from the Harvey Banks pumping plant monitoring conducted under the oversight of the DWR. **Attachment C** summarizes receiving water data, maximum effluent concentrations (MECs) and includes aquatic life and human health criteria and Basin Plan objectives for each priority pollutant and other constituents.

In addition, on 10 September 2001 the Executive Officer issued a letter, in conformance with State Water Code, Section 13267, requiring the Discharger to prepare a technical report assessing effluent and receiving water quality. A copy of that letter, including its attachments is incorporated into this Order as **Attachments D through D-4**. A provision contained in this Order is intended to be consistent with the requirements of the technical report (**Attachment D**) in requiring sampling for National Toxics Rule (NTR), California Toxics Rule (CTR) and additional constituents to determine if the discharge has a reasonable potential to cause or contribute to water quality impacts.

Since this is a permit revision requested by the Discharger to modify its existing permit and CDO to account for the change in discharge location and allow a new compliance time schedule with the copper limitations, no changes to the existing effluent limitations have been made. Furthermore, all the new effluent limitations for CTR and other constituents are in effect once direct discharge into Old River is completed or by 1 June 2004, whichever comes first.

Based on the available information the following effluent limitations were included in this Order:

Technology Based

Technology-based treatment requirements under section 301 (b) of the CWA represent the minimum level of control that must be imposed in a permit issued under section 402 of the CWA. Technology based secondary treatment standards for Municipal Point-Source Dischargers are contained in 40 CFR Section 133. For secondary treatment, the 30-day average BOD_5 and total suspended solids (TSS) concentrations each shall not exceed 30 mg/l, the 7-day average BOD_5 and suspended solids concentrations each shall not exceed 40 mg/l, and the 30-day average BOD_5 and suspended solids percent removal each shall not be less than 85 percent. This permit contains more restrictive 7-day average and 30-day average effluent limitations for BOD than are required by the technology based secondary treatment standards in order to avoid backsliding. The reason for the more restrictive BOD_5 limitations is due to the limited dilution available in the reclamation district ditch during a majority of the time, and to maintain the dissolved oxygen concentration in the ditch for the aquatic species that are present." The facility has been able to meet the existing BOD_5 limitations.

TSS effluent limits are set at the technologic standard required by USEPA. Tighter TSS limitations were considered because of concerns for limited oxygen demand assimilative capacity in the receiving water, but TSS is not a direct measurement of oxygen demand. The tighter effluent BOD effluent limit was judged a better means of regulating oxygen demand than tightening the TSS limitation. The most recent self monitoring reports for 2001 and 2002 showed TSS concentrations ranged from <5 to 13 mg/l with a monthly average ranging from <5 to 8.3 mg/l. The same reports showed BOD_5 concentrations ranging from <3 to 44 mg/l with a monthly average ranging from <3 to 7.1 mg/l. Therefore, these more restrictive limitations continue to be included in this Order.

Water Quality Based

Ammonia

Ammonia concentrations in the effluent ranged from 0.1-1.2 mg/l with a pH range of 7.0 to 8.1 and a temperature range of 15 ^{0}C to 26.3 ^{0}C based on samples collected between 1999 and 2002. Ammonia was detected in Old River (at R1 monitoring station) with a maximum concentration of 1.0 mg/l from samples taken in 2002. Untreated domestic wastewater contains ammonia. Wastewater treatment plants commonly use nitrification and denitrification processes to remove ammonia from the waste stream. Nitrification is a biological process that converts ammonia to nitrate, and denitrification is a process that converts nitrate to nitrogen gas, which is then released to the atmosphere. The Discharger currently operates its oxidation ditch in a manner that nitrifies and denitrifies its effluent and discharges low concentrations of ammonia. Because ammonia is in all domestic wastewater failure to operate the wastewater treatment plant in nitrification mode would present a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan prohibition against the discharge of toxic constituents in toxic concentrations. Ammonia is known to cause toxicity to aquatic organisms in surface waters. The USEPA has published revised ambient water quality criteria for Ammonia (1999 Ammonia Update), superseding all previous USEPA recommended freshwater criteria for ammonia. The new criteria incorporate revisions where the acute criterion (1-hour average) for ammonia is now dependent on pH and fish species and the chronic criterion (30-day average) is dependent on pH and temperature, and at temperatures lower than 15^{o}C is also dependent on fish species. Based on the available data, it seems that worst-case scenarios would be when pH is 8.1 and temperature is 26 ^{o}C. Under these conditions, the U.S. EPA's ambient water quality criteria for ammonia are 4.64 mg/l (Salmonids Present) and 6.95 mg/l (Salmonids Absent) as a 1-hour average (acute) and 1.00 mg/l as a 30-day average (chronic). The highest ammonia concentration reported (1.2 mg/l) exceeds the chronic criterion under worst case conditions, and therefore the effluent has the reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan Narrative toxicity objective with respect to ammonia. The single detected background concentration for Old River may be questionable, but without additional adequate data, and to be protective of the aquatic beneficial uses, it will still be considered. Based on the limited available information, both the effluent and Old river concentrations under worst-case conditions, exceed ambient water quality criteria for ammonia, and therefore **no dilution** can be granted when discharging to Old River. The previous permit included an effluent limitation for ammonia dependent only on ph, where the 30 day average limit did not vary with temperature. This Order will continue to include an effluent limitation for ammonia, however, it will now vary with effluent pH and temperature for fish early life stages present as shown on Attachments F (chronic-30-day averages) and Attachment G (acute-1-hour-averages) which is applicable when discharging to the Reclamation District No. 800 ditch and Old River. Effluent data for the past years show that

the Discharger has been in compliance with the previous ammonia limitation and will be able to comply with the new limitation which includes a minor change, the variation with temperature.

Nitrate

Nitrate concentrations (as N) in the effluent ranged from 2.7-16 mg/l based on 10 samples taken between 1999 and 2002, with an average of 7.8 mg/l. The maximum background concentration for Nitrate (as N) in Old River was 2.3 mg/l based on samples taken in 2002. As previously indicated, the Discovery Bay WWTP operates its oxidation ditch in nitrification and denitrification mode, however, inadequate or incomplete denitrification may result in the discharge of nitrate to the receiving stream. The Basin Plan requires that waters designated as domestic or municipal supply shall not exceed the Maximum Contaminant Level (MCL), as specified in Title 22 of the California Code of Regulations (CCR). The MCL for nitrates, established by Title 22, is 10 mg/l (as N) or 45 mg/l (as NO_3). The conversion of ammonia to nitrates presents a reasonable potential for the discharge to exceed the Primary Maximum Contaminant Level for nitrate. In addition, based on the maximum effluent concentration, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the MCL for nitrate. As previously indicated, this Order addresses the change in the discharge point location, considering a direct discharge into Old River, and any new limitations for nitrate will not be in effect until after completion of the direct discharge into Old River. Therefore, this Order includes an effluent limitation for nitrate as a monthly average of 87 mg/l (as N) or 392 mg/l (as NO_3) when discharging directly into Old River based on the MCL and a conservative dilution of 10:1 within a mixing zone of 6 feet deep (9 feet from river surface), 105 feet wide and 2 feet in longitudinal diameter. This limit is effective upon completion of the direct discharge to Old River or by 1 June 2004.

Analytical results for Nitrate in the effluent and receiving water are summarized below

Sample Date	Nitrate in effluent (mg/l)	Sample Date	Nitrate in Old River at R1 station (mg/l)
5/16/00	8.0		
11/21/00	5.6		
5/22/01	2.7		
11/7/01	10		
5/29/02	8.2	5/29/02	**2.3**
6/19/02	14	6/19/02	2.0
7/25/02	7.2	7/25/02	1.8
8/28/02	**16**	8/28/02	1.9
9/18/02	9.4	9/18/02	2.2
10/8/02	9.0		

Calculation of the effluent limitation for Nitrate (for direct discharge into Old River) is as follows:
(B = 2.3 mg/l, and MEC = 16 mg/l, C = 10 mg/l, and D = 10)
ECA = C + D (C-B)
ECA = 10 + 10 (10-2.3)
ECA = 87 mg/l.
Therefore, the effluent limitation for Nitrate as a monthly average is established as 87 mg/l (as N) or 392 mg/l (as NO_3).

Salinity (Electrical Conductivity (EC), Total Dissolved Solids (TDS), and chloride

Electrical Conductivity (EC) concentrations in the effluent ranged from 1900-2300 µmhos/cm with a maximum 30-day average of **2200** µmhos/cm based on results from samples collected between 2000 and 2002. Ambient background data (as presented in the 7 August 2002 Old River Dilution and Assimilative Capacity Analysis report) at monitoring station R1 in Old River ranged from 223-976 µmhos/cm, with a maximum 30-day running average of **923** µmhos/cm between 1 September and 31 March, and a maximum 30-day running average of **604** between 1 April and 31 August. In addition, ambient background data at Harvey Banks pumping plant in Old River showed EC levels ranging from 215-725 µmhos/cm with a maximum 30-day running average of **725** µmhos/cm between 1 September and 31 March, and a maximum 30-day running average of **519** between 1 April and 31 August. For EC, the secondary MCL recommended range is 900 µmhos/cm, the upper range is 1600 µmhos/cm, and the short term range is 2200 µmhos/cm. The Agricultural Water Quality Goal is 700 µmhos/cm. For EC, because there are site specific Basin Plan objectives, the seasonal water quality objectives for the protection of agricultural uses included in Table 2 of the 1995 Bay Delta Plan (incorporated as table III-5B in the Basin Plan), these become the applicable standards and they are **700** µmhos/cm (growing season) as a 30-day average from 1 April through 31 August, and **1000** µmhos/cm (non-growing season) as a 30-day average from 1 September through 31 March. The Sacramento–San Joaquin Delta has been listed as an impaired waterbody pursuant to Section 303(d) of the Clean Water Act due to EC. The section impaired by EC only applies to 16,000 acres out of a total of 48,000 acres, known as the South Delta. The Reclamation District No. 800 channel and the section of Old River in the vicinity of the discharge are part of the South Delta. However based on the available data, this section of Old River is not impaired by EC. The Discharge, however, does have a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan seasonal objectives for the protection of agricultural uses. As previously indicated, this Order addresses the change in the discharge point location, considering a direct discharge into Old River, and any new limitations for EC will not be in effect until after completion of the direct discharge into Old River. Therefore, this Order includes an effluent limitation for EC when discharging to Old River, established as 2925 µmhos/cm as a monthly average, based on the seasonal growing agricultural water quality objective, and a conservative available dilution of 25:1 within a mixing zone of 13.5 feet deep (1.5 feet from river surface), 105 feet wide, and 5 feet in longitudinal diameter. This limit is effective upon completion of the direct discharge to Old River or by 1 June 2004. Analytical results for EC (maximum weekly sample) in the effluent and receiving water are summarized below:

Sample Date	EC in effluent (µmhos/cm)	Sample Date	EC in Old River @ R1 (µmhos/cm)
Feb/00	2100	Feb/00	340
Mar/00	2100	Mar/00	364
Apr/00	2100	Apr/00	288
May/00	2000	May/00	377
Jun/00	2200	Jun/00	246
Jul/00	2200	Jul/00	252
Aug/00	2200	Aug/00	277

Sep/00	2200	Sep/00	370
Oct/00	2200	Oct/00	633
Nov/00	2200	Nov/00	617
Dec/00	2100	Dec/00	612

Sample Date	EC in effluent (µmhos/cm)	Sample Date	EC in Old River @ R1 (µmhos/cm)
Jan/01	2100	Jan/01	758
Feb/01	2100	Feb/01	424
Mar/01	2200	Mar/01	471
Apr/01	2200	Apr/01	399
May/01	**2300**	May/01	383
Jun/01	2200	Jun/01	352
Jul/01	2200	Jul/01	406
Aug/01	2200	Aug/01	650
Sep/01	2200	Sep/01	976
Oct/01	2200	Oct/01	931
Nov/01	2100	Nov/01	640
Dec/01	2100	Dec/01	650

Sample Date	EC in effluent (µmhos/cm)	Sample Date	EC in Old River @ R1 (µmhos/cm)
Jan/02	2100	Jan/02	820
Feb/02	2000	Feb/02	356
Mar/02	2100	Mar/02	335
Apr/02	2100	Apr/02	475
May/02	2100	May/02	399
Jun/02	2200	Jun/02	280
Jul/02	2100	Jul/02	550
Aug/02	2200	Aug/02	660
Sep/02	2100	Sep/02	810

Calculation of the effluent limitation for EC (for direct discharge into Old River) is as follows:
(B, highest 30 day averages = 604 µmhos/cm during the growing season and 923 µmhos/cm during the non-growing season, MEC, = 2300 µmhos/cm, C, seasonal objective = 700 µmhos/cm during the growing season and 1000 µmhos/cm during the non-growing season, and D = 10)
ECA = C + D (C-B)
ECA, growing season= 700 + 25 (700-604) = 3100 µmhos/cm
ECA, non-growing season = 1000 + 25 (1000 – 923) = 2925 µmhos/cm.

Therefore, the effluent limitation for EC as a monthly average is established as 2925 µmhos/cm

Total Dissolved Solids (TDS) concentrations in the effluent ranged from 1200-**1600** mg/l with an average of 1290 mg/l based on results from 30 samples collected between 2000 and 2002. Ambient background data for TDS at monitoring station R1 in Old River ranged from 180-430 mg/l with an average of 296 mg/l from samples taken in 2002. However, ambient background data at Harvey Banks pumping plant in Old River for TDS ranged from 123-**388** mg/l with an average of 240 mg/l based on samples taken between 2000 and 2002. For TDS, the secondary MCL recommended range is 500 mg/l, the upper range is 1000 mg/l, and the short term range is 1500 mg/l. The Agricultural Water Quality Goal for TDS is 450 mg/l, a value that represents a guideline for interpreting water

quality for irrigation. The previous permit required the Discharger to provide information as to the source of TDS, provide methods to reduce salt loading, and provide information as to whether the levels of TDS in the discharge cause or contribute to an in-stream excursion in Old River above a water quality objective. Based on the available and submitted information, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the agricultural water quality goal. As previously indicated, this Order addresses the change in the discharge point location, considering a direct discharge into Old River, and any new limitations for TDS will not be in effect until after completion of the direct discharge into Old River. Therefore, this Order includes an effluent limitation for TDS, when discharging to Old River, established as 1990 mg/l as a monthly average, based on the agricultural water quality goal, and a conservative available dilution of 10:1 within a mixing zone of 6 feet deep (9 feet from river surface), 105 feet wide, and 2 feet in longitudinal diameter. This limit is effective upon completion of the direct discharge to Old River or by 1 June 2004.

Analytical results for TDS in the effluent and receiving water are summarized below:

Sample Date	TDS in effluent (mg/l)	Sample Date	TDS in effluen t (mg/l)	Sample Date	TDS in effluen t (mg/l)	Sample Date	TDS @ R1 (mg/l)
1/xx//00	N/A	1/17/01	1300	1/15/02	1300	1/xx/02	N/A
2/xx/00	N/A	2/14/01	1300	2/12/02	1200	2/xx/02	N/A
3/xx/00	N/A	3/14/01	1300	3/12/02	1300	3/xx/02	N/A
4/12/00	1300	4/17/01	1200	4/16/02	1300	4/xx/02	N/A
5/16/00	1300	5/15/01	1300	5/14/02	1300	5/29/02	200
6/14/00	1300	6/12/01	1200	6/19/02	1300	6/19/02	180
7/19/00	1300	7/17/01	1300	7/25/02	1400	7/25/02	290
8/16/00	1200	8/14/01	1300	8/28/02	1300	8/28/02	380
9/13/00	1200	9/18/01	1300	9/18/02	1200	9/18/02	430
10/18/00	1200	10/16/01	1300	10/xx/0 2	N/A	10/xx/02	N/A
11/15/00	1300	11/07/01	1600	11/xx/0 2	N/A	11/xx/02	N/A
12/13/00	1300	12/11/01	1300	12/xx/0 2	N/A	12/xx/02	N/A

Calculation of the effluent limitation for TDS (for direct discharge into Old River) is as follows:
(B, average of 2002 data = 296 mg/l, MEC = 1600 μmhos/cm, C = 450 mg/l, and D = 10)
ECA = C + D (C-B)
ECA = 450 + 10 (450-296) = 1990 mg/l

Therefore, the effluent limitation for TDS as a monthly average is established as 1990 mg/l.

Chloride concentrations in the effluent ranged from 310-**460** mg/l based on results from samples collected between 2000 and 2002. Samples taken by the Discharger show that chloride concentrations in Old River ranged from 28-**170** mg/l with an average of 97 mg/l, based on samples taken in 2002. Other ambient background data at Harvey Banks pumping plant in Old River for chloride ranged from 25-**147** mg/l with an average of 71 mg/l based on samples taken between 2000 and 2002. The secondary MCL recommended range for chloride is 250 mg/l, the upper range is 500 mg/l, and the short term range is 600 mg/l. USEPA's National Ambient Water Quality Criteria for

chloride for the Protection of Freshwater Aquatic Life is 230 mg/l, as a 4-day average, and 860 mg/l as a 1-hour average. The 1995 Bay Delta Plan Table 1 (incorporated as table III-5A in the Basin Plan) also includes a MUN water quality objective for chloride of 250 mg/l at a downstream location of the discharge at the Delta Mendota Canal at Tracy Pumping Plant, and an IND water quality objective of 150 mg/l (applicable at most 240 days in a year) at a upstream location of the discharge at the Contra Costa Canal Pumping Plant #1. The Agricultural Water Quality goal for chloride is 106 mg/l. However, because there is a site-specific Basin Plan objective of 250 mg/l about 10 miles downstream of the discharge point, and another site specific objective of 150 mg/l about 25 miles upstream (which can be influenced by Old River reversal flows) then these objectives become the applicable standards. Based on this information, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the site specific Basin Plan objectives. As previously indicated, this Order addresses the change in the discharge point location, considering a direct discharge into Old River, and any new limitations for chloride will not be in effect until after completion of the direct discharge into Old River. Therefore, this Order includes an effluent limitation for chloride when discharging to Old River, established as 650 mg/l as a monthly average protective of the secondary MCL or MUN site specific objective and allowing a conservative dilution of 5:1 within a mixing zone equivalent to the 10:1 zone of 6 feet deep (9 feet from river surface), 105 feet wide, and 2 feet in longitudinal diameter, and protective of the IND site specific objective and allowing a dilution of 25:1 within a defined mixing zone of 105 feet wide, 13.5 feet deep (1.5 feet from river surface), and 5 (4.7 on table below) feet in longitudinal diameter. The daily maximum limitation is established as 860 mg/l based on the USEPA ambient water quality acute toxicity criterion with no dilution allowed. These limits are effective upon completion of the direct discharge to Old River or by 1 June 2004.

Analytical results for chloride in the effluent and in the receiving water are summarized below:

Sample Date	Chloride in effluent (mg/l)	Sample Date	Chloride in Old River at R1 station (mg/l)
5/16/00	460		
11/07/01	370		
5/29/02	380	5/29/02	45
6/19/02	390	6/19/02	28
7/25/02	390	7/25/02	110
8/28/02	380	8/28/02	130
9/18/02	370	9/18/02	170

Calculation of the effluent limitation for Chloride (for direct discharge into Old River) is as follows:
Considering the MUN site specific objective,
(B, highest result = 170 mg/l, MEC = 460 mg/l, C = 250 mg/l, and D = 5)
ECA = C + D (C-B)
ECA = 250 + 5 (250-170) = 650 mg/l
Considering the IND site specific objective,
(B, representative highest result <150 mg/l for 240 days in year = 130 mg/l, MEC = 460 mg/l,
C = 150 mg/l, and D = 25)
ECA = C + D (C-B)
ECA = 150 + 25 (150-130) = 650 mg/l

However to ensure that at no time the effluent is acutely toxic with respect to chloride, a daily maximum limitation is set equal to the USEPA ambient water quality acute toxicity criterion for protection of freshwater species of 860 mg/l.

Therefore, the effluent limitation for chloride as a monthly average is established as 650 mg/l and as a daily maximum is established as 860 mg/l.

Total Coliform

Municipal and domestic supply, agricultural irrigation, and body contact water recreation are beneficial uses of Old River and Reclamation District No. 800 drainage ditch based on the Basin Plan designation of the Delta. **Total Coliform** limits are imposed to protect the beneficial uses of the receiving water, including public health through contact recreation and drinking water pathways. The previous permit included total coliform effluent limitations that protected contact recreation in Old River, but did not protect full submersion contact recreation and agricultural irrigation within the Reclamation District No. 800 drainage ditch because the beneficial uses were believed not to exist. Previous letters from the Contra Costa Environmental Health Department, dated 11 March 1999, and Discovery Bay Yacht Harbor, dated 27 February 1998, Checchini & Checchini property owner, dated 27 February 1998, Jorgen V. Lunding, property owner, dated 18 March 1998, and Reclamation District No. 800, dated 4 March 1998 and 3 March 1999, concluded that the contact recreational uses of the ditch do not reasonably exist from the point of discharge into the ditch up to the pumping station point just before being pumped into Old River. In addition Contra Costa County Department of Health Services letter dated 11 March 1999 sent to the Regional Board stated that they had performed a survey on 10 March 1999 of the reclamation ditch and observed no recreational use or evidence of recreational use of the ditch and no agricultural irrigation pumps were observed in the ditch other than those that discharge into Old River. However, a recent State Board decision (Order WQ 2002-0015 regarding the City of Vacaville WWTP) provided guidance on implementing Basin Plan beneficial use designations and resulting limitations to protect these uses. Some of the issues addressed by the State Board Order would be relevant to Discovery Bay discharge to the reclamation ditch. Renewal of the existing Discovery Bay NPDES permit in June 2004 would have resulted in reestablishing contact recreation and agricultural irrigation as beneficial uses of the reclamation ditch unless a Basin Plan amendment was adopted dedesignating those uses. Since discharges to the reclamation ditch are prohibited by this Order after 1 June 2004, the issue of designation/dedesignation of beneficial uses of the reclamation ditch has become a non-issue.

In a letter to the Regional Board dated 8 April 1999, the California Department of Health Services (DHS) indicated that for wastewater discharged to water bodies with identified beneficial uses of irrigation or contact recreation and where the wastewater receives dilution of more than 20:1, it would be considered adequately disinfected if the effluent coliform concentration does not exceed 23 MPN/100 m*l* as a 7-day median and if the effluent coliform concentration does not exceed 240 MPN/100 ml more than once in any 30 day period. As previously indicated, this Order addresses the change in the discharge point location (direct discharge into Old River) and any new limitations for total coliform will not be in effect until after completion of the direct discharge into Old River. The current effluent total coliform organisms limitations for the Discharger include a monthly median of 23 MPN/100 m*l* and a daily maximum of 500 MPN/100 m*l*. Therefore, the 23 MPN/100 ml limitation is found to be appropriate as a 7-day median, and the daily maximum will be established as 240 MPN/100 ml effective upon completion of the direct discharge into Old River or

by 1 June 2004. Based on a review of the effluent monitoring, the Discharger is already able to meet the new limitations; therefore, no time schedule for compliance is included in this Order.

Copper

Copper concentrations in the effluent ranged from 5.4 to 51 µg/l (as total recoverable) in samples collected between 2000 and 2002. The maximum background concentration for total copper at Old River (monitoring stations R1 and R2) is 6.2 µg/l based on data submitted in the monitoring reports and excluding outliers. However, this receiving water data is being considered inappropriate for this particular pollutant because it has been collected from the shore zone of Old River influenced by the Discharger's effluent and the Reclamation District No. 800 agricultural drainage pump station, and does not necessarily represent bulk river water quality. Therefore other representative data was used, data collected at the Harvey Banks pumping plant about 10 miles downstream of the discharge point into Old River. The maximum background concentration for total copper at the Harvey Banks pumping plant is 4.2 µg/l (based on data submitted in the 7 August 2002 Old River Dilution and Assimilative Capacity Analyses Report). The Basin Plan includes a site-specific receiving water objective for dissolved copper of 10 µg/l (independent of hardness), which translates to a total recoverable concentration of 10.4 µg/l (using the default USEPA conversion factor of 0.96). The CTR Water Quality Criteria for copper expressed as total concentrations for the protection of freshwater aquatic life for acute and chronic scenarios are 8.8 µg/l and 6.1 µg/l respectively based on the worst case Old River hardness of 61 mg/l as $CaCO_3$. Based on available data, the effluent does have the reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for freshwater species, and the site-specific Basin Plan objective. The previous permit included an effluent limitation of 10 µg/l as a daily maximum, 20 µg/l as a 4-day average, and 31 µg/l as a 1-hr average. The Discharger could not comply with these limitations and therefore a compliance schedule was included in CDO No. 99-097. The final compliance date was 1 September 2002, and the discharger has not been able to meet this compliance date. The Discharger has opted for constructing a direct discharge into Old River and use the available dilution in Old River within a mixing zone and has requested to revise its CDO. Therefore, this Order addresses the change in point of discharge location and the CDO is being revised to include a new time schedule for construction of a new outfall with a diffuser for direct discharge into Old River. The new effluent limitations for the protection of freshwater species are hardness dependent and were calculated using SIP procedures as shown in **Attachment E,** applying a conservative dilution of 25:1 within a mixing zone of 13.5 feet deep (1.5 feet from river surface), 105 feet wide, and 5 feet in longitudinal diameter for the chronic toxicity criterion and a dilution of 10:1 within a mixing zone of 6 feet deep (9 feet from river surface), 105 feet wide, and 2 feet in longitudinal diameter for the acute toxicity criterion. To determine compliance with this limitation, the applicable hardness will be the receiving water hardness at monitoring station R1A. . In addition, in order to comply with the site-specific basin plan Delta copper objective, an effluent maximum daily limit of 165 µg/l was established and only applicable when receiving water hardness is greater than 135 mg/l. Full compliance with these final limitations is not required by this Order until 1 June 2004. In the meantime, interim effluent limits based on plant performance are established in the revised CDO and are in effect through 31 March 2004. Analytical results (highest result of each biweekly sampling) for total copper in the effluent are summarized below:

Sample Date	Copper (µg/l)	Sample Date	Copper (µg/l)	Sample Date	Copper (µg/l))
Jan/00		Jan/01	18	Jan/02	15

Feb/00	23	Feb/01	27	Feb/02	7.3
Mar/00	22	Mar/01	16	Mar/02	9.6
Apr/00	14	Apr/01	17	Apr/02	7.7
May/00	19	May/01	15	May/02	14
Jun/00	10	Jun/01	17	Jun/02	9.6
Jul/00	**51**	Jul/01	19	Jul/02	12
Aug/00	16	Aug/01	6.7	Aug/02	11
Sep/00	17	Sep/01	8.8	Sep/02	14
Oct/00	12	Oct/01	19	Oct/02	
Nov/00	16	Nov/01	16	Nov/02	
Dec/00	18	Dec/01	18	Dec/02	

Calculating Effluent Limits when discharging directly into Old River:

Example of limitation under worst-case condition of river hardness of 61 mg/l.
A certain dilution credit (D) can be allowed since it has been determined that Old River does have assimilative capacity with regards to copper. (B = 4.2 µg/l and MEC = 51 µg/l as total copper concentrations, C acute = 8.8 µg/l, C chronic = 6.1 µg/l also as total concentrations)
ECA = C + D (C-B)
LTA = ECA x ECA multiplier (based on the CV value)
Multipliers to calculate LTA, MDEL (Maximum Daily effluent limit), and AMEL (Average monthly effluent limit) came from the State Implementation Policy (SIP) Tables 1 and 2.
Based on the data available, the applicable coefficient of variation is CV = 0.5

Therefore:
Applying a dilution of 10:1 for acute and 25:1 for chronic, here are the calculations for the LTAs.
LTA (acute) = 0.373 x [8.8 + 10 (8.8-4.2)] = **20.4**
LTA (chronic) = 0.581 x [6.1 + 25 (6.1-4.2) = **31.1**
Choosing the lowest of the two, the effluent limitations are calculated as follows:
MDEL = Lowest LTA x MDEL multiplier (99 percentile)
AMEL = Lowest LTA x AMEL multiplier (95 percentile)
MDEL = 20.4 x 2.68 = **55** µg/l as Total Copper.
AMEL = 20.4 x 1.45 = **30** µg/l as Total Copper.

Therefore, the effluent limitations for the protection of freshwater species under the worst case receiving water hardness of 61 mg/l would be 55 µg/l as the daily maximum and 30 µg/l as the monthly average.

Since the criteria are dependent on hardness, then the effluent limitations will also change based on hardness. Attachment E includes calculated limitations for monthly and daily maximums at different hardness values. However, considering the Basin Plan site-specific objective of 10.4 µg/l, which is independent of hardness, and a dilution credit of 25:1, the following daily maximum limit is also established:
MDEL = 10.4 + 25 (10.4-4.2) = 165 µg/l.

Therefore, at receiving water hardness greater than 135 mg/l, the daily maximum limit is no longer dependent on hardness, and the applicable daily maximum limit for copper becomes 165 µg/l.

303 (d) Pesticides (Organochlorine and Organophosphate)

The Sacramento–San Joaquin Delta has been listed as an impaired waterbody pursuant to Section 303(d) of the Clean Water Act because of: (1) diazinon and chlorpyrifos (organophosphate pesticides), (2) Group A-organochlorine pesticides {aldrin, chlordane, dieldrin, endosulfan (alpha, beta, sulfate), endrin, endrin aldehyde, 4,4'DDT, heptachlor, heptachlor epoxide, hexachlorocyclohexane (alpha, beta, delta and lindane), and toxaphene}, and (3) unknown toxicity. The Basin Plan objectives regarding pesticides include:

a) no individual pesticides shall be present in concentrations that adversely affect beneficial uses,
b) discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affects beneficial uses,
c) total chlorinated hydrocarbon pesticide concentrations shall not be present in the water column at detectable concentrations, and
d) pesticide concentrations shall not exceed those allowable by applicable antidegradation policies.

Organophosphate pesticides, diazinon and chlorpyrifos, are commonly-used insecticides found in many domestic wastewater discharges at concentrations which can cause toxicity in both the effluent and in the receiving water. Samples taken in 2002 found diazinon and chlorpyrifos in the effluent to be **non detect (<0.5 µg/l and <0.6 µg/l respectively)**. The Discharger will however, be required to monitor for diazinon and chlorpyrifos. The Basin Plan's requirement that persistent chlorinated hydrocarbon pesticides shall not be present in the water column in detectable concentrations is the most stringent criterion for the regulation of the Group A-**organochlorine pesticides (OPs)**. The Organochlorine pesticides were analyzed in the effluent and receiving water on samples taken in 2002. The results **were non-detect in both the effluent and receiving water**. Although, these constituents are listed under the California 303(d) list as pollutants causing impairment in the Sacramento-San Joaquin Delta, because of site specific results of non-detect, this Order does not include an effluent limitation for group A-organochlorine pesticides.

Mercury

Mercury was detected in the effluent on all 5 samples taken in 2002 using a "clean technique" USEPA Method 1631 with concentrations ranging from 0.0026-0.0055 µg/l. Mercury was also detected in all 5 samples taken from Old River, upstream of the discharge point, with concentrations ranging from 0.0015-0.0041 µg/l. The current USEPA's ambient water quality criterion (expressed as dissolved concentrations) for continuous concentration of mercury is 0.77 µg/l (4-day average, chronic criteria), and the CTR (expressed as total recoverable) concentration for the human health protection for consumption of water and aquatic organisms is 0.050 µg/l. Mercury is listed under the California 303(d) list as a pollutant causing impairment in the Sacramento-San Joaquin Delta. This listing is based partly on elevated levels of mercury in fish tissue. Because the Sacramento-San Joaquin Delta has been listed as an impaired water body for mercury based on fish tissue impairment, the discharge must not cause or contribute to increased mercury levels in fish tissue.

The Regional Board plans to adopt Total Maximum Daily Loads (TMDLs) for mercury in the Sacramento-San Joaquin Delta by December 2005. When the TMDL is complete, the Regional

Board will adopt appropriate water quality based concentration and mass loading effluent limits for the discharge. For situations like this, the SIP recommends that mass loading of the bioaccumulative pollutant should be limited in the interim to representative, current levels pending development of applicable water quality standards. Until the TMDL is completed and water quality based effluent limits are prescribed, an interim, performance based, mass loading limit will be prescribed.

The existing analyses of mercury are sufficient to determine reasonable potential but are not a sufficient database to determine an annual interim mass effluent limitation, therefore this permit does not contain an interim performance-based effluent limit for mercury until additional data are obtained. A provision of this Order requires the Discharger to conduct 1 year of monthly monitoring for mercury in the effluent, using a "clean technique" USEPA Method 1631, with monthly mass loadings being calculated for each calendar month, and allows the Regional Board to reopen the permit to establish an interim effluent mass limit for mercury. The final effluent limit for mercury will be determined from an approved TMDL.

NO REASONABLE POTENTIAL

There were several constituents which were detected in the effluent or receiving water that do not pose a reasonable potential to cause an exceedance of a water quality standard and effluent limits were not included in the proposed Order:

Aluminum

Aluminum concentrations in the effluent ranged from 90-110 µg/l from samples collected in 2002. Aluminum was detected in Old River with a maximum concentration of 620 µg/l from samples taken in 2002. The Primary and Secondary MCLs for aluminum are 1000 µg/l and 200 µg/l respectively. The 1999 USEPA's ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum expressed as total recoverable are 750 µg/l (1-hour average, acute) and 87 µg/l (4-day average, chronic). Based on the following evaluation of water quality criteria, the discharge does not have reasonable potential to cause or contribute to an exceedance of water quality criteria for aluminum in Old River.

Recent discussions between States and USEPA, regarding the application of the chronic toxicity criteria for aluminum, has resulted in other some States clarifying the USEPA criteria and establishing NPDES effluent limitations, utilizing the conditions in which toxicity testing actually occurred in the literature. The public USEPA criteria for chronic toxicity is conservative in that the toxicity testing was conducted under certain conditions that do not routinely occur in most valley floor water bodies. Utah, under EPA Region 1, addresses the chronic aluminum toxicity issue through the following footnote in their permits: "The aluminum criteria are expressed as total recoverable metal in the water column. The 87 µg/l chronic criterion for aluminum is based on information showing chronic effects on brook trout and striped bass. The studies underlying the 87 µg/l chronic value, however, were conducted at low pH (6.5 - 6.6) and low hardness (< 10 ppm CaCO3), conditions uncommon in Utah's surface waters. A water effect ratio toxicity study in West Virginia indicated that aluminum is substantially less toxic at higher pH and hardness (although the relationship is not well quantified at this time). Further, EPA is aware of field data indicating that many high quality waters in the U.S. contain more than 87 µg/l aluminum when either the total

recoverable or dissolved aluminum is measured. Based on this information and considering the available toxicological information in Tables 1 and 2 of EPA's Aluminum Criteria Document (EPA 440/5-86-008), the (Utah) Department of Environmental Quality will implement the 87 µg/l chronic criterion for aluminum as follows: where the pH is equal to or greater than 7.0 and the hardness is equal to or greater than 50 ppm as CaCO3 in the receiving water after mixing, the 87 µg/l chronic criterion will not apply, and aluminum will be regulated based on compliance with the 750 µg/l acute aluminum criterion. In situations where the 87 µg/l chronic criterion applies, a discharger may request development of a site-specific chronic criterion based on a water effect ratio. Or, a discharger may request development of a permitting procedure (a translator) that would take into account less toxic forms of particulate aluminum. In either case, the Department may require that the discharger requesting the change provide the technical information and data needed to support such a change."

This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts and USEPA's criteria for prevention of acute and chronic toxicity are numerical criteria, which are commonly used by this Board as recommended criteria, are protective of the Basin Plan's narrative toxicity objective.

USEPA established the chronic aluminum criterion of 87 µg/L in their 1988 Ambient Water Quality Criteria document (United States Environmental Protection Agency, Office of Water Regulations and Standards). The criterion is intended to apply when the pH is between 6.5 and 9.0. USEPA scientists derived a Final Chronic Value of 748 µg/L using their standard methodology. This Final Chronic Value was equivalent to their Criterion Maximum Concentration (an acute criterion). The derived Final Chronic Value, however, was superceded by "other data" that suggested that the Final Chronic Value should be lowered to 87 µg/L to protect two important species, brook trout and striped bass.

The following quote is from p. 6 of the USEPA document and provides the rationale for lowering the chronic criterion from 748 µg/l to 87 µg/L:

Cleveland et al. (Manuscript) found that 169 µg/L caused a 24% reduction in the weight of brook trout in a 60-day test, whereas 88 µg/L caused a 4% reduction in weight. In a 7-day test, 174.4µg/L killed 58% of the exposed striped bass, whereas 87.2 µg/L did not kill any of the exposed organisms (Buckler et al., Manuscript). Both of these tests were conducted at a pH of 6.5 to 6.6.

The suitability of the chronic water quality criteria for aluminum was by USEPA scientists based on aluminum toxicity to trout and bass. Aluminum toxicity increases in acidic waters. Interpretation of these toxicity tests requires a working definition of a biologically significant effect. The data show that 87 µg/L is appropriate for waters in the pH range of 6.5 to 6.8. The available data also suggests that an appropriate chronic criterion to protect trout and bass from slight or moderate effects in the pH 7.0 to 7.8 range is approximately 200 µg/L, based on the lowest aluminum concentrations tested being 174 and 242 µg/L. Although the National Guidelines allow a criterion to be a function of a water quality characteristic such as pH, salinity, or hardness, there was no data available in 1988 showing slight or moderate effects in the higher alkaline pH ranges. Therefore, USEPA's Final Chronic Value for aluminum is likely overprotective when applied to ambient waters with pHs greater than 6.8. Because aluminum toxicity increases as pH is lowered perhaps a more appropriate chronic criterion would be an algebraic equation based on pH.

The receiving water Discovery Bay discharges to (Old River) are historically well above a hardness of 50 ppm CaCO3 and a pH level of 7.0 (the Utah and Texas criteria). The hardness in Old River may on occasion fall below 50 ppm, but only when the river is at flood stage and when significant dilution of the discharge would occur. As noted above, chronic toxicity occurred resulting in a previous recommended limit of 87 µg/l when the testing hardness was 10 ppm, a level of hardness not recorded in this area of the river. Utah used a hardness of 50 ppm as a conservative regulatory criteria.

Because the receiving water naturally exceeds the Secondary MCL and chronic toxicity criteria, resulting in no assimilative capacity in the receiving water, the discharge would have to meet all regulatory water quality criteria at end-of-pipe. Based on reported range of effluent quality of 90-110 µg/l, the discharge does not have reasonable potential to cause an exceedance of water quality criteria for acute or chronic toxicity or the secondary MCL and therefore no effluent limitations have been established in this Order.

Arsenic

Arsenic concentrations in the effluent ranged from 1.5 to 2 µg/l in samples collected in 2002. The available maximum background concentration for arsenic at Old River was 3.0 µg/l. The State's MCL for arsenic is 50 mg/l. However, on 22 January 2001, USEPA adopted a new primary MCL for arsenic of 10 µg/l (total recoverable). The CTR chronic and acute freshwater criteria for total arsenic concentrations are 150 µg/l and 340 µg/l, respectively. The Basin Plan includes a receiving water limit of 10 µg/l, and the Narrative Toxicity Objective. The Regional Board will utilize the promulgated drinking water MCL of 10 µg/l to implement the narrative toxicity objective. Based on this information, the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for arsenic, and therefore, an effluent limitation for arsenic is not necessary.

Barium

Barium concentrations in the effluent ranged from 42 to 50 µg/l in samples collected in 2002. The available maximum background concentration for barium at Old River was 39 µg/l. The most stringent criterion is the site-specific Basin Plan water quality objective of 100 µg/l. Since both the effluent and receiving water concentrations are lower than the Basin Plan objective, then there is no reasonable potential and an effluent limitation for barium is not necessary.

Cadmium

Cadmium concentrations in the effluent ranged from <0.03-0.1 µg/l in samples collected in 2002. The available maximum background concentration for cadmium at Old River was 0.2 µg/l based also on samples taken in 2002. The most stringent criteria are the CTR chronic and acute freshwater criteria which are expressed as total concentrations 1.7 µg/l and 2.6 µg/l, respectively. Since both the effluent and receiving water concentrations are lower than the CTR criteria, then there is no reasonable potential and an effluent limitation for cadmium is not necessary.

Iron

Iron concentrations in the effluent have been non-detect (<50 µg/l) in samples collected in 2002. Background concentrations for iron at Old River ranged from 340-740 µg/l based on samples collected in 2002. The Basin Plan includes a site specific (Delta waters including Old River) receiving water objective for iron of 300 µg/l. The secondary MCL for iron is also 300 µg/l. USEPA's National Ambient water quality criterion instantaneous maximum for the protection of freshwater aquatic life for iron is 1000 µg/l. The receiving water shows a maximum concentration that exceeds the site specific Basin Plan objective or secondary MCL. According to the SIP (applicable for toxic priority pollutants), if background concentrations exceed water quality criteria then an effluent limitation would be required. However, because iron is not a toxic priority pollutant and because the effluent alone does not have reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for iron, this Order does not include effluent limitations for iron.

Fluoride

It was found in the effluent ranging from 500-800 µg/l from samples collected in 2002. The available maximum background concentration for fluoride at Old River was 300 µg/l. The State's Primary MCLs for fluoride is 2000 µg/l. The Agricultural Water Quality Goal for fluoride is 1000 µg/l. Based on this information, the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above a water quality objective, and therefore, an effluent limitation for fluoride is not necessary.

Sulfate

Sulfate concentrations in the effluent ranged from 110-170 mg/l based on results from samples collected between 1998 and 2002. Sulfate was found in Old River at a concentration of 36 mg/l on a sample collected in 2002. In addition, ambient background data at Harvey Banks pumping plant in Old River ranged from 26-51 mg/l based on samples taken between 2000 and 2002.The Secondary MCL for sulfate is 250 mg/l. Based on this information, the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the secondary MCL of 250 mg/l. Therefore, an effluent limitation for sulfate is not necessary.

STORMWATER

Federal Regulations for storm water discharges were promulgated by the U.S. Environmental Protection Agency on 19 November 1990. The regulations of 40 CFR Parts 122, 123, and 124 require specific categories of industrial activities, including Publicly Owned Treatment Works (POTW), which discharge storm water associated with industrial activity to obtain an NPDES permit and to implement Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology to control pollutants in industrial storm water discharges

The Discovery Bay Wastewater Treatment plant is covered under the General Storm Water Permit, Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001 for *Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities*. The Discharger has implemented a storm water pollution prevention plan and sampling/monitoring program for the facility.

RDJ: